ELECTRICAL SOUTH

APRIL
1945

Library

52-In Hotel Type

FANS by HUNTER-CENTURY

58th SEASON

24-In "Airspread" Ceiling

HUNTER, who has made fans and ventilators exclusively during 58 years, is now operating under War Production Board restrictions. • No more fans will be made except for the Army, Navy and Maritime Commission. HUNTER unfilled orders now on hand represent contracts with Government Agencies. • Certain sizes of belted exhaust types can be made available for Government hospitals and other war industries, subject to limited material inventories now on hand.

HUNTER FAN & VENTILATING COMPANY, INC.

Factory: FULTON, N. Y.

General Sales Offices: Memphis, Sterick Bldg. *Eastern Sales Office*: New York, 92 Warren Street *Western Sales Office*: St. Louis, 1706 Olive Street

Sales Offices:
ATLANTA
CHICAGO
DALLAS
HOUSTON
LOS ANGELES
PHILADELPHIA

Zephair Comfort Cooling and Commercial Ventilators

Sales Offices:
BOSTON
CLEVELAND
DETROIT
KANSAS CITY
NEW ORLEANS
PITTSBURGH

SYLVANIA NEWS
CONTRACTOR EDITION

APRIL — *Published in the Interests of Better Sight and Sound* — 1945

Survey Reveals Strong Trend to Fluorescent Lighting in the Home

Keen Public Interest Points to Big Postwar Market in Residential Field

Popular interest in fluorescent lighting in the home—as revealed by an impartial survey conducted by a leading market research organization, at the request of Sylvania Electric's Sales Research Department—indicates considerably expanded use of this type of illumination in the residential field after the war.

Of the more than 3,000 persons interviewed in the survey, only about 10% now have fluorescent lighting. Almost half of these, however, expect to install more fluorescent after the war.

Of those now without fluorescent lighting, 16% plan to install it in one or more rooms. Among this group, the kitchen is by far the most popular choice. (See percentages shown in the chart below.) The living room was the second choice, followed by bathroom, bedroom, dining room and basement. With those now having some fluorescent lighting, the bathroom outranked the living room.

From this evidence of growing interest in fluorescent lighting in the home, it appears that electrical contractors, in formulating their postwar business-building plans, would do well to give careful study to the residential field, still a relatively untapped market.

SYLVESTER SURVEY

"You plan to have fluorescent lighting in both the kitchen and bathroom. Now, how about the basement?"

DID YOU KNOW...

That 79% of the people having fluorescent lighting in their homes expressed themselves as *entirely* satisfied with it?

SYLVANIA ELECTRIC

SYLVANIA ELECTRIC PRODUCTS INC., Salem, Massachusetts

MAKERS OF FLUORESCENT LAMPS, FIXTURES, ACCESSORIES; INCANDESCENT LAMPS; RADIO TUBES; CATHODE RAY TUBES; ELECTRONIC DEVICES

ELECTRICAL SOUTH is published monthly by W. R. C. Smith Publishing Co., Marietta, Ga., and Atlanta, Ga., U. S. A. Subscription rates, United States and Possessions, $1.00 for one year; Canada, $1.50 per year; Foreign Countries, $2.00 per year. Entered as second class matter at the postoffice, Marietta, Ga., under Act of March 3, 1879.

Volume 25 Number 4

FOR WET OR DRY LOCATIONS . . .

HAZAKROME

Building Wire

HAZAKROME --- 12 --SN-- 600V --SYNTHETIC

TYPE

SN

is designed for ordinary locations in buildings of all types.

TYPE

SNW

is designed for moist locations in accordance with Section 3035 of the N. E. C.

HAZAKROME --- 14 --SNW-- 600V --SYNTHETIC

Insulation and protective sheath are combined in Hazakrome Building Wire. Its plasticized synthetic resin insulation has proved itself in over five years of service to the building trade, providing outstanding advantages in:

1. INSULATION

A non-flammable thermoplastic, Hazakrome is oil and chemical-resistant and will not oxidize or sun-check. It has high dielectric and mechanical strength, and its aging qualities insure long life. It contains no fibrous braids or tapes to rot, no saturants to flake off or soften.

2. NEW WIRING and REWIRING

In addition to requiring no braid, Hazakrome Building Wire has a lighter wall of insulation than Type R Wire. Thus a greater number or larger sizes of wires can be pulled in old buildings, and new buildings can be adequately wired for heavier copper for future needs without increasing conduit costs.

3. EASY HANDLING

The smooth, hard glossy finish makes Hazakrome easy to pull. It strips clean for splicing and soldering. Thin-wall insulation produces light weight wire that is easy to handle.

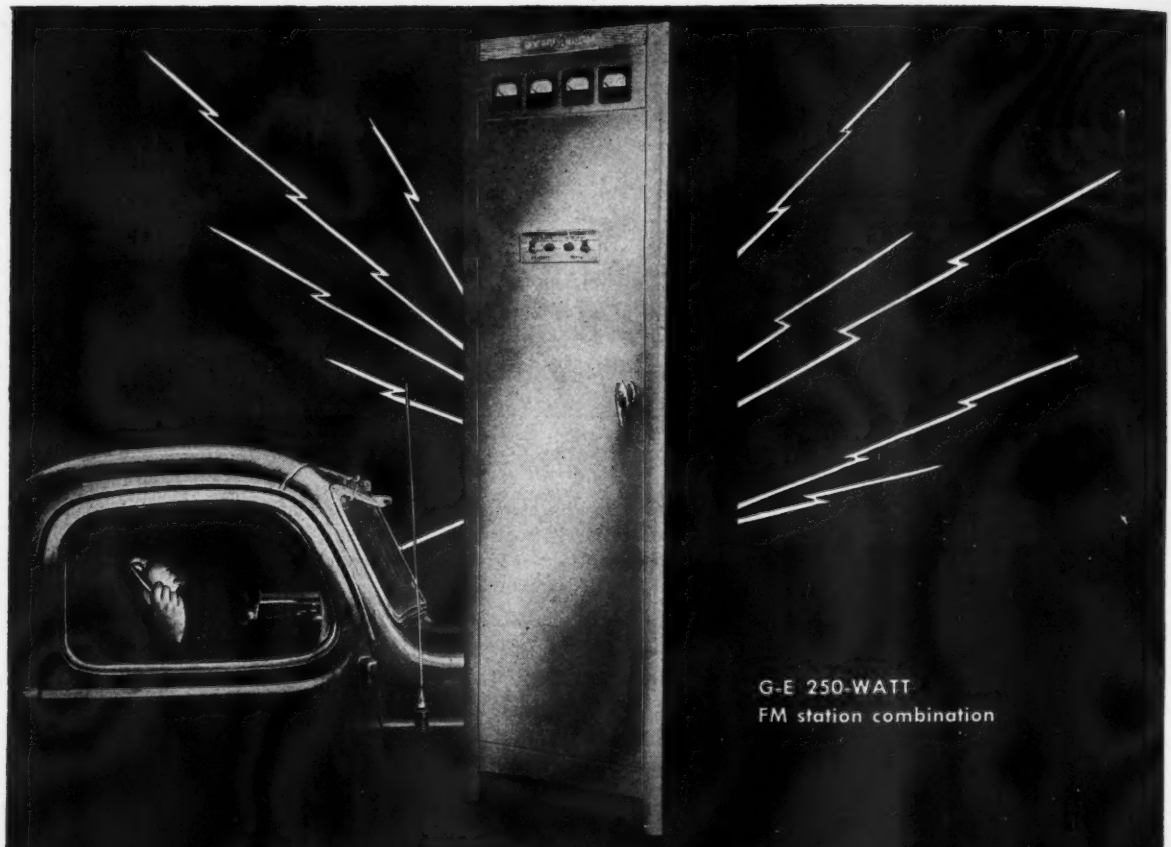
4. SIZE and IDENTIFICATION

Hazakrome small diameter Building Wire is available in all standard sizes up to 2,000,000 CM, and in a wide range of colors. It is suitable for an entire wiring system.

Types SN and SNW, sizes from 14 to 4/0, are approved by Underwriters' Laboratories. Hazard Insulated Wire Works, Division of The Okonite Company, Wilkes-Barre, Pa.

HAZARD

Insulated wires and cables for every electrical use



General Electric *Presents* the 250-Watt FM Station Combination

FOR RADIO SUPERVISION OF SYSTEM MAINTENANCE

• *provides maximum 2-way communication range*

FOR central dispatching headquarters, General Electric offers the 250-watt FM radio station combination for installations where coverage of an extensive area is required.

● This station combination is a complete FM headquarters unit incorporating all transmitting and receiving facilities. It is capable of maintaining reliable 2-way radio communication over exceptional distances throughout your circuit mileage, under the severest conditions day and night—and with remarkable freedom from static and interference.

● The G-E FM station combination includes • a transmitter rated at 250 watts and capable of delivering, conservatively, a power output of 350 watts at any frequency in the 30- to 40-megacycle band • a heavy-duty transmitter power supply • a highly sensitive station receiver capable of reproducing intelligible messages down to the fringe of usable signal strength • provision for use of the G-E deluxe remote-control unit so that the entire station combination may be installed at the best location for maximum range and coverage.

● For additional information on the G-E 250-watt FM station combination, and on General Electric's complete line of 2-way FM communication equipment, call your G-E sales engineer. *Electronics Department, General Electric, Schenectady 5, N. Y.*

Government regulations now permit new installations of 2-way FM radio for important requirements of utility companies. Your G-E representative will help prepare your application.

Hear the G-E radio programs: *"The World Today" news, Monday through Friday 6:45 p. m., EWT, CBS. "The G-E All-Girl Orchestra," Sunday 10 p. m., EWT, NBC. "The G-E House Party," Monday through Friday, 4 p. m., EWT, CBS.*

Everything for 2-Way Radio Communication

GENERAL ELECTRIC

163-DB-6919

ARCHITECTS
CONTRACTORS
INDUSTRIAL
ENGINEERS

There is NO SUBSTITUTE for Experienced Technical Skill

When you are planning new or extended electrical systems, future requirements must be given equal consideration to present needs. Correctly engineered switchboards, panelboards and power distribution methods demand careful planning and selection if future requirements are to be considered.

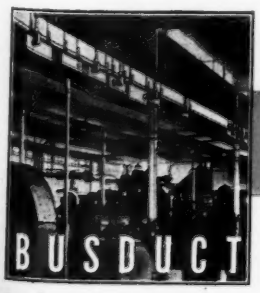
Here is where the FA Sales Engineer can be of real assistance. Through many years of successful working with Architects, Contractors and Industrial Engineers he knows your problems. By his daily contacts he has first-hand knowledge of the latest developments in your field. His technical skill is on display in hundreds of installations in your locality. Behind him is a pioneer manufacturer of switchboards, panelboards and power distribution systems. His experience and ability are yours for the asking, so call or write him today.

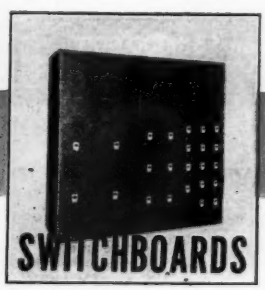
Frank Adam

ELECTRIC COMPANY

General Office and Factory
3650 Windsor Place
St. Louis 13, Mo.

New York Office and Warehouse
419 West 54th Street
New York 19, N. Y.





These Sales Engineers Can Help You

ATLANTA 2, GA.
Herman Junghans
1820 Memorial Drive S. E.
P.O. Box 4183

BALTIMORE 11, MD.
Wolfe & Mann Mfg. Co.
28th and Sisson Sts.

BUFFALO 2, N. Y.
James Hunter, 259 Delaware Ave.

CHICAGO 7, ILL.
Triangle Equipment Co., Inc.
610 W. Van Buren St.

CINCINNATI 2, OHIO
Miller Kleine, 1303 Union Trust Bldg.

CLEVELAND 15, OHIO
R. F. Reske Agency
Room 606, 1900 Euclid Ave.

DALLAS 1, TEXAS
P. A. Michler, 1814 Allen Bldg.

DENVER 2, COLO.
F. E. Staible, 319 14th St.

DES MOINES 9, IOWA
Midwest Equipment Co., 908 Grand Ave.

DETROIT 1, MICH.
J. P. Laughlin, 3101 Brooklyn Ave.

FLORIDA — CLEARWATER
F. C. Picker, 606 N. Osceola Ave.
(P.O. Box 264)

INDIANAPOLIS 4, IND.
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305 Merchants Bank Bldg.

KANSAS CITY 6, MO.
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MEMPHIS 3, TENN.
Lee B. Rosebrough, 166 Monroe Ave.

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72 Jacob St., Malden 48, Mass.

NEW ORLEANS 12, LA.
W. J. Keller, 304 Natchez Bldg.

OMAHA 2, NEB.
Midwest Equipment Co., 1112 Farnam St.

PHILADELPHIA 7, PA.
Wm. A. MacAvoy, Jr., 244 N. 10th St.

PITTSBURGH 22, PA.
Crescent Sales Co., 298 DuQuesne Way

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O. H. Rottmann, 1023 N. Grand Blvd.

SAN FRANCISCO 9, CALIF.
Columbia Elec. Mfg. Co., 390 9th St.

SPOKANE 9, WASH.
A. F. Cook, 818 Fourth St.

SYRACUSE 10, N. Y.
F. L. Grant, 625 Cumberland Ave.

TOLEDO 6, OHIO
Frank L. Lucas, 2236 Hollywood Ave.

TULSA 4, OKLA.
Paul E. Ebersole, 214 S. Victor St.

EXPORT REPRESENTATIVE

NEW YORK 7, N. Y.
Langguth-Olson Co., 11 Park Place

TIME MARCHES...

Every month brings nearer the era of reconversion and recovery. As the lessening demands for war release more materials, men and machines to meet the growing demands for peace-time products . . . your need for a taped-out plan of action becomes more clear.

With respect to financing, common sense should shape or direct your program. The glitter of new plans may screen flaws and weaknesses that could later lead to trouble and loss. Sound procedure stems from fundamentals, proved by experience.

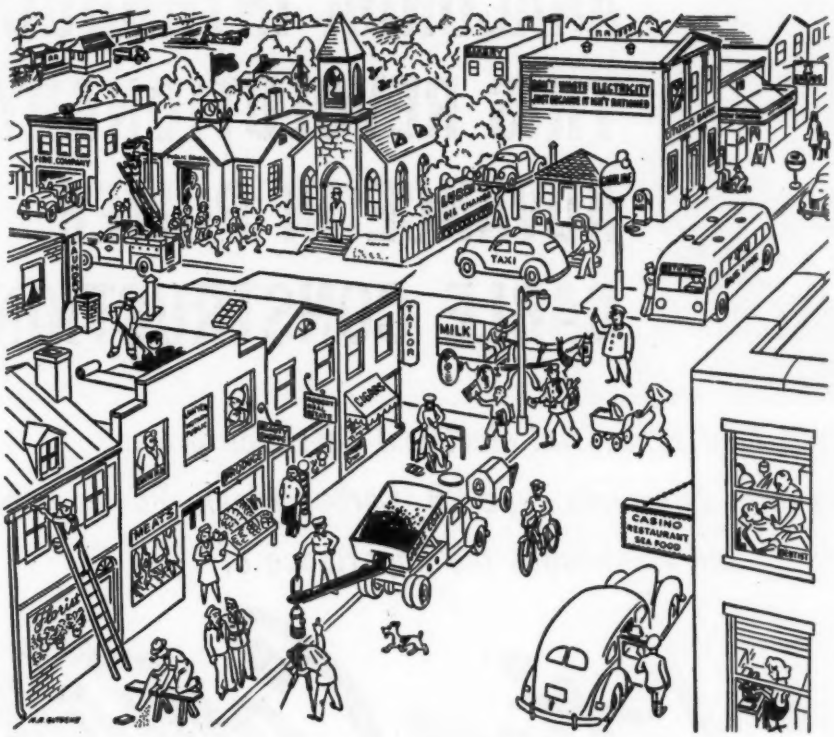
A talk with our representative, we believe, will pay you future dividends . . . help you blue-print the ways and means to meet every competitive move.

COMMERCIAL CREDIT COMPANY

BALTIMORE 2, MARYLAND

Capital and Surplus more than $65,000,000

Credit Bankers to America's Families for 33 Years



How many occupations in this picture?

There are no tricks—no hidden faces. Just see how many ordinary, every-day occupations you can find. Count 'em before you check the answer in the tiny type below.*

Whatever the number, it's a pretty safe bet that *all* these occupations—and many more—are represented among the folks who own your local electric light and power company.

Housewives and farmers lead the stockholder lists of most such companies. But there are plenty of nurses and doctors, teachers and mechanics, secretaries and salesmen, too.

There are several million of these *direct* owners—and you may be among them.

Certainly you are included among the *indirect* owners, if you have a savings account or life insurance policy. When you make a deposit or pay a premium, the money isn't just stuffed in a strong-box and left there. It's put to work earning a profit for *you*—a profit called "interest."

Banks and insurance companies invest your money carefully. They put a large proportion of it into electric light and power securities—because these companies have proved their basic soundness over the years by dependable service and good *business* management.

So the electric industry is probably the most widely owned industry in America. Almost every American has a stake in it. *And what helps the industry helps you.*

167 ELECTRIC LIGHT AND POWER COMPANIES*

SELF-SUPPORTING, TAX-PAYING BUSINESSES

*Names on request from this magazine.

*The artist—who ought to know—says there are 46.

★ HEAR NELSON EDDY IN "THE ELECTRIC HOUR," WITH ROBERT ARMBRUSTER'S ORCHESTRA. EVERY SUNDAY AFTERNOON, 4:30, EWT, CBS NETWORK.

How to get fun out of a fact—and vice versa

The advertisement shown here throws new light on the old myth that the electric business belongs to Wall Street.

It's a picture puzzle, but there's nothing puzzling about the point it makes—*that the real ownership of the electric industry goes right down into Main Street . . . to you and you and you!*

This advertisement appears in national magazines during April. It is part of a public information program, now in its fourth year, which has aroused wide interest and enlisted more and more *business*-managed electric companies.

Similar advertising in magazines, farm publications and newspapers is backed by the powerful force of radio—"The Electric Hour" featuring Nelson Eddy — every Sunday afternoon, 4:30, EWT, over CBS.

Tune in this program regularly, read the advertisements as they appear, and tell your friends about them. *What helps your industry helps you.*

167 ELECTRIC LIGHT AND POWER COMPANIES*

SELF-SUPPORTING, TAX-PAYING BUSINESSES

*Names on request from this magazine.

5 years ago ANACONDA INTRODUCED THIS REVOLUTIONARY ADVANCE IN POWER CABLE CONSTRUCTION...

Since then successful electrical operation proves the advantage of Anaconda Type CB (Carbon Black) Power Cable and establishes the importance of

Oxidation Control

THE PURIFYING EFFECT of a special highly-adsorbent carbon-black in Type CB Cable actually stabilizes the oil to prevent breakdown due to heat and electrical stress. Oxidation is effectively blocked. In the Type CB construction the configurations of stranded conductors are also smoothed, thus reducing maximum stress.

In cyclic aging tests by a utility laboratory, Type CB Cable maintained a low, uniform power factor at temperatures up to 117° C. and at double operating voltage.

Type CB Cable is another example of Anaconda's many "firsts" in quality, performance—and economy too. Obviously Type CB gives you a lot more for your cable dollar. Ask to see graphic demonstrations of its all-round advantages. 45303

ANACONDA

Anaconda Wire & Cable Co.

GENERAL OFFICES: 25 Broadway, New York City 4 — *Subsidiary of Anaconda Copper Mining Company*

CHICAGO OFFICE: 20 North Wacker Drive 6 • Sales Offices in Principal Cities

ELECTRICAL SOUTH

VOL. 25 APRIL 1945 NO. 4

T. W. McALLISTER, *Vice Pres., Editorial Director*

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L. F. COCHRAN, *Assistant Editor*

BARON CREAGER, *Southwestern Editor*

FRANK P. BELL, *Business Manager* — W. E. COOGLER, *Production Manager*

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Member A. B. P. — A. B. C.

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W. A. McGEE, Post Office Box 562, Charlotte, N. C. Tel. 3-4932.
L. B. CHAPPELL, 427 W. 5th St., Los Angeles, Calif. Tel. Tucker 9363.

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Publishers Also of

SOUTHERN AUTOMOTIVE JOURNAL — COTTON
SOUTHERN POWER & INDUSTRY — SOUTHERN HARDWARE

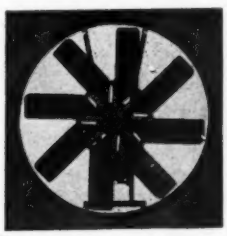
"They say you learn who your friends are when the going gets tough. And there've been lots of rough spots in the last few years for a dealer like me.

"Well, I learned that those boys at Coolair really stick with a guy. They helped me keep going, and serve the war effort too, by feeding me the dope on selling fans to military stations, war plants and essential civilian places. And they could just as easy have gone around me! I did what they said, and they kept the fans coming. Boy, I'm doing all right!

"Learned something else, too. This Coolair fan business is a lot better business than I thought. The way Coolair plays square with any guy who keeps pitching, I figure I'm sitting pretty in the fan picture after this mess is over.

"Yes sir, Coolair sure has helped me plenty!"

Coolair
TRADE MARK



Military and war plant demands for Coolair fans have far outstripped production, in spite of our expanded plant facilities. But Coolair dealers who have been concentrating on government and essential civilian business are cashing in on reasonably prompt shipments of their orders.

A FEW CHOICE TERRITORIES STILL OPEN!

Present and post-war opportunities are excellent. Write for literature and franchise information.

A full description of the Coolair line, with tables showing models, dimensions, performance data, etc., can be found in SWEET'S CATALOG A.S.H.V.E. GUIDE ELECTRICAL BUYER'S REFERENCE

AMERICAN COOLAIR CORPORATION...Manufacturers

3604 MAYFLOWER STREET

JACKSONVILLE 3, FLORIDA

NOW Get the Right Varnish for that Insulating Job

Quickly-Easily-Accurately...

IT'S FREE!

Ask your G-E Distributor for it

A quick glance at this handy, easy-to-use Varnish Selector gives you all the facts on 7 outstanding insulating varnishes — characteristics, applications, baking and drying time, base, thinner, viscosity—everything you want to know. Ask your local G-E Merchandise Distributor for one and you'll always have this essential information at your finger tips, ready to use. A list of G-E Distributors is available on request from Section RIM 452-23, Resin and Insulation Materials Division, General Electric Company, Schenectady 5, New York.

SEND THIS COUPON NOW TO YOUR LOCAL G-E MERCHANDISE DISTRIBUTOR

Gentlemen:

Please send me a G-E Insulating Varnish Selector as offered in Electrical South.

Name.....

Title.....

Company.....

Address.....

GENERAL ELECTRIC

ADEQUATE WIRING PROGRAMS REVIVED

Utility company wiring activities lay groundwork for unprecedented sales of household appliances in postwar.

CUSTOMERS of the Georgia Power Co. are now receiving personalized recommendations for their postwar wiring requirements through specially trained employees. According to A. W. Harris, supervisor of dealer coordination for Georgia Power Co., the present wiring activity is designed to stimulate the customer's desire for better wiring, by crystallizing on paper the electrical needs of the individual family.

Mr. Harris says, "We are endeavoring to build up a sizable customer acceptance and an understanding of better wiring through company employees who have daily contacts with our customers. At the present time our employees are limiting this part of their daily work to those customers who indicate a postwar interest in remodelling or building a new home.

"We have given our employees special training in the essential fundamentals of Adequate Wiring, and they are qualified to make and leave with customers specific recommendations on a form which we provide.

"The form personalizes the customer's problem and gives a logical reason for spending the additional money for a better wiring job.

"We feel that working with the individual is not only building up a backlog of better wiring jobs but will also receive support from reputable building and electrical contractors."

The front page of the form used by the Georgia Power Co. home service and other employees for providing preliminary wiring recommendations is reprinted in an adjoining column. The center spread is a cross-hatched engineering sheet on which a sketch of the customer's house layout can be made, with outlet locations shown. A room-by-room summary of outlet, lighting and switch requirements is on the back page.

A large part of the individual contact work now being carried on by Georgia Power Co. is done by home service employees. Every new home

Preliminary Wiring Recommendations
For

Name _____ Address _____

New Residence _____ Remodeled _____ Size in Sq. Ft. _____

Equipment Now in Use		Equipment To Be Used or Added		Total Wattage
Lighting & Radio Wattage		Lighting & Radio Wattage		
Dishwasher		Dishwasher		
Disposal Unit		Disposal Unit		
Refrigerator		Refrigerator		
Small Appl. Wattage		Small Appl. Wattage		
Washing Machine		Washing Machine		
Ironer		Ironer		
Range		Range		
Water Heater		Water Heater		
Pump		Pump		
Stoker		Stoker		
Attic Fan		Attic Fan		
Laundry Drier		Laundry Drier		
Other Major Appl.		Other Major Appl.		

Summary Of Better Wiring Recommendations

Number of 15 ampere Lighting circuits _____

Number of 20 ampere appliance circuits:
Kitchen & Dining Rm. _____ Laundry _____ Total _____

Special circuits for fixed appliances size and purpose:
Range _____ Water Heater _____ Pump _____
Stoker _____ Laundry Drier _____ Others _____
Attic Fan _____

Number of spare circuits for future use _____

Size of entrance wiring _____

Capacity of main switch/circuit breaker _____

Shown above is page 1 of the personalized wiring recommendation and layout sheet used by Georgia Power Company home service representatives, and other employees, in developing customer acceptance of adequate wiring in preparation for postwar building and remodelling.

service representative is given thorough basic training in Adequate Wiring fundamentals. One home service woman in each area of the company's territory is designated as a "Home Improvement Specialist." This representative is specially trained in adequate wiring, home lighting, kitchen and laundry planning and the like. She acts as special adviser on these subjects to all customers in her area.

* * *

Adequate Wiring was the subject of the evening at a recent dinner meeting of the Electrical Association of New Orleans.

Present at the meeting as guests of the Association were members of the Louisiana Architects Association, representatives of local banks, general contractors and home builders and electrical contractors.

Sol Rosenthal, president of the Louisiana Architects Association, discussed future home building from the viewpoint of the Architect. His talk was followed by the showing of the sound slide film, "Electrical Living in 194X."

The attendance at the meeting was one hundred and sixty.

* * *

A 60-page "Home Planning Guide," published recently by John Schaefer, a St. Petersburg, Fla., builder, for distribution to the public, thoroughly covers the subject of adequate wiring and electrical home equipment. In addition to illustrating a typical adequate wiring layout, the book emphasizes the importance of adequate wiring as a basic essential, and devotes several pages to photographs and sketches of typical electrical equipment. Eleven floor plans are included, each one having the washing machine, water heater and refrigerator locations designated on the plans.

According to Robert H. Giedd, new business manager, Florida Power Corporation, his company's assistance was sought in preparing the wiring layout and providing information on electrical features. He anticipates similar requests from other builders in the area. The inside front cover of this book carries an advertisement of the Florida Power Corporation.

* * *

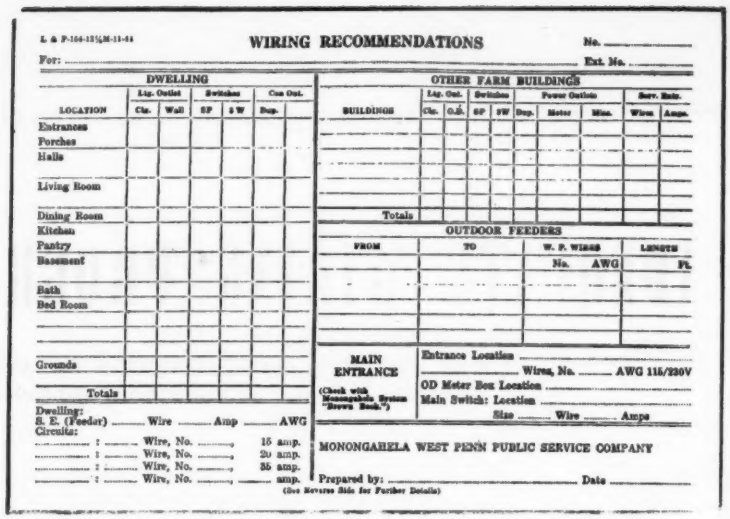
The Monongahela West Penn Public Service Company is carrying forward a program of training for its field organization on rural wiring promotion, preparatory to the beginning of new construction. A 10-page mimeographed brochure has been produced, containing both promotional and technical information. According to J. R. Waters, residential promotion manager for the company, this brochure has been well received by the organization, and has provided the means of conducting a very satisfactory "refresher" course for 42 of their rural representatives. Following are excerpts from the promotional material in the brochure. The technical material, designed to guide the rural representative in making actual farm wiring layouts, may be revised later, after the National Standard of Farmstead Wiring Adequacy has been approved and published.

Farm Wiring Planning

"Various factors enter into determining the electric service needs of any particular farm. By electric service needs we mean the uses to which electricity will be put at the outset of service, and the possible uses that may develop over the whole life of the buildings involved.

"To attempt to set down hard and fast rules as to the farm needs for

(*Continued on page 72*)



WIRING RECOMMENDATIONS

No. _____

For: _____ Ext. No. _____

DWELLING

LOCATION	Lig. Outlet Cls.	Lig. Outlet Wall	Switches SP	Switches 3 W	Con Out Dup.	
Entrances						
Porches						
Halls						
Living Room						
Dining Room						
Kitchen						
Pantry						
Basement						
Bath						
Bed Room						
Grounds						
Totals						

Dwelling:
S. E. (Feeder) ..... Wire ..... Amp ..... AWG
Circuits:
..... : ..... Wire, No. ....., 15 amp.
..... : ..... Wire, No. ....., 20 amp.
..... : ..... Wire, No. ....., 35 amp.
..... : ..... Wire, No. ....., ... amp.

OTHER FARM BUILDINGS

BUILDINGS	Lig. Out. Cls.	Lig. Out. O.D.	Switches SP	Switches 3W	Power Outlets Dup.	Power Outlets Meter	Power Outlets Misc.	Serv. Entr. Wires	Serv. Entr. Amps.
Totals									

OUTDOOR FEEDERS

FROM	TO	W. P. WIRES No.	W. P. WIRES AWG	LENGTH Ft.

MAIN ENTRANCE (Check with Monongahela System "Green Book.")

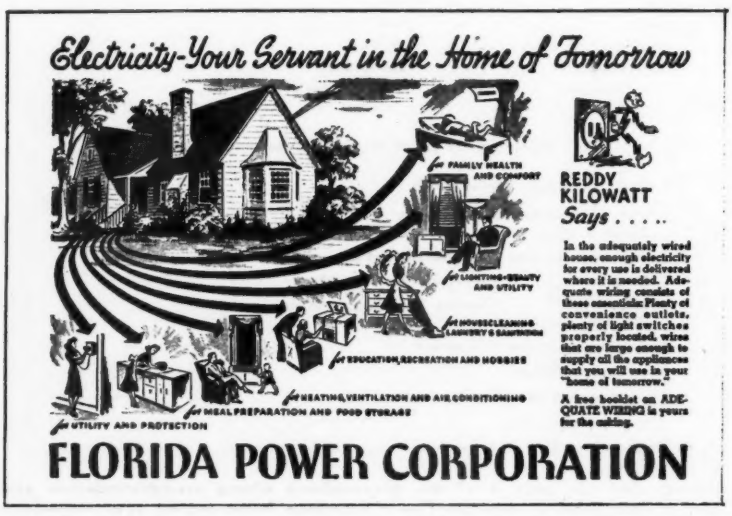
Entrance Location _____
_____ Wires, No. ..... AWG 115/230V
OD Meter Box Location _____
Main Switch: Location _____
Size ..... Wire ..... Amps

MONONGAHELA WEST PENN PUBLIC SERVICE COMPANY

Prepared by: _____ Date _____

(See Reverse Side for Further Details)

Form used by Monongahela West Penn System field representative in making farm wiring recommendations. Each rural representative carries a book of these forms, printed in triplicate. One copy is retained by the company, and two are left with the farmer, in order that he may secure two bids on identical specifications.


Electricity-Your Servant in the Home of Tomorrow
for FAMILY WEALTH AND COMFORT
for LIGHTING-BEAUTY AND UTILITY
for HOUSECLEANING LAUNDRY & SANITATION
for EDUCATION, RECREATION AND HOBBIES
for HEATING, VENTILATION AND AIR CONDITIONING
for MEAL PREPARATION AND FOOD STORAGE
for UTILITY AND PROTECTION
REDDY KILOWATT Says . . . .
In the adequately wired house, enough electricity for every use is delivered where it is needed. Adequate wiring consists of these essentials: Plenty of convenience outlets, plenty of light switches properly located, wires that are large enough to supply all the appliances that you will use in your "home of tomorrow."
A free booklet on ADEQUATE WIRING is yours for the asking.
FLORIDA POWER CORPORATION

Advertisement appearing on inside front cover of the Home Planning and Building Guide, published in St. Petersburg, Fla.

Exterior of the attractive place of business operated by D. A. Eubanks, Eubanks Appliance Company, of East Point, Georgia.

Wartime Experience Helps With Postwar Planning

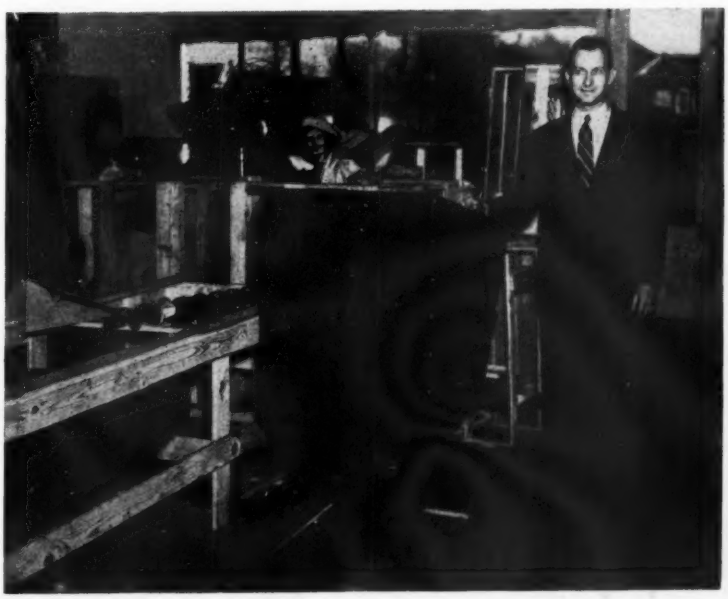
THE "ILL WIND" of war has in a sense blown good to D. A. Eubanks, proprietor of Eubanks Appliance Company, East Point, Ga., a suburb of Atlanta. It has shown him the right combination of merchandise to handle, a combination which he believes will enable him to go places after the war. His firm's slogan is "Exponents of Better Living."

When the freeze on electrical appliances took place, some dealers, finding themselves without anything to sell, turned to substitute lines such as toys, gift goods, glassware, phonograph records, books and stationery. Others converted almost 100 per cent to service. Eubanks chose neither. He didn't like the small goods and variety store merchandise because he wanted to maintain his place as a home equipment store. He was merchandise minded and therefore didn't care to convert to a repair and maintenance shop.

So Eubanks went heavily into his present specialty—that of heating and ventilating. That wasn't such a radical step for him as he already had been handling stokers and ventilating fans and these continued to be available for industrial and commercial purposes. To these he added other miscellaneous heating equipment, such as unit heaters, blowers, electrical controls, booster and condensate pumps. In short, he handles everything in the heating and ventilating line except furnaces and boilers and he proposes to handle them after the war and to add a sheet metal shop.

To his staff Eubanks added R. N. Wellborn, former city smoke inspector, who heads up his heating department, selling as well as installing. The concern is getting a good allotment of stokers from a leading manufacturer and reports that selling them was "never easier," this being brought about by wartime conditions. The stoker not only saves fuel, paying for itself in the average plant in two to four years, but also releases a fireman for other duties. Mr. Wellborn reported that his former contacts with engineers and plant owners while he was smoke inspector was helpful to him in making sales. In addition he likes to work "cold turkey," cruise around and observe smoking chimneys and then call on the plant owner or engineer in question. Numerous sales both in and out of the city have been made. To Mr. Wellborn, a smoking chimney is a sign of fuel waste and

(Continued on page 71)



Wartime conditions were responsible for Durwood Eubanks getting into the heating and ventilating business as a side line to his electrical home equipment business. The results have been so encouraging that he plans to continue this combination after the war.

Modern Thinking on Home Lighting

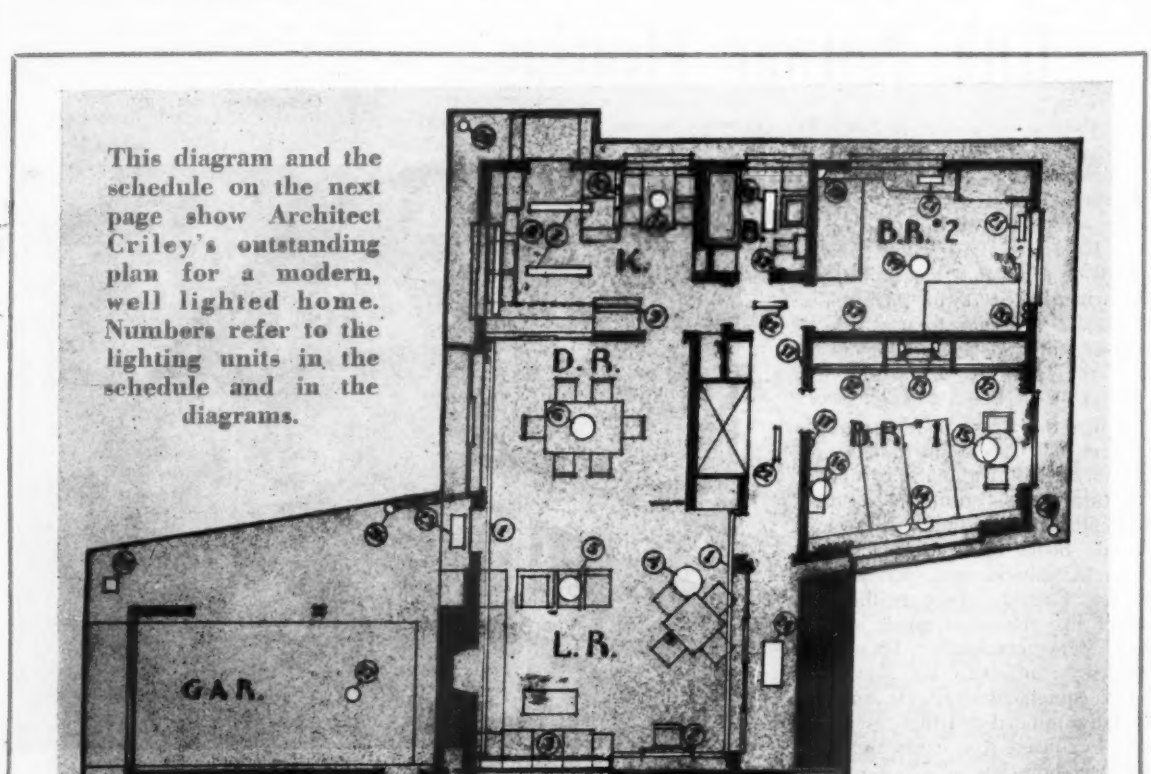
FLUORESCENT lamps have found only limited application, so far, in the home — principally because the radically different shape of the light source required a complete change in fixtures and accessories, and because of the limited range in sizes and shapes available up to the time war production demands greatly limited home construction.

There is considerable evidence that postwar homes will make much more use of these lamps, especially in some of the new sizes and shapes promised for the postwar period. Already architects and home designers are thinking in terms of fluorescent lighting for the home. An indication of this trend is to be found in the study recently sponsored by the General Electric Company and described in the company's pubication, *The Magazine of Light*.

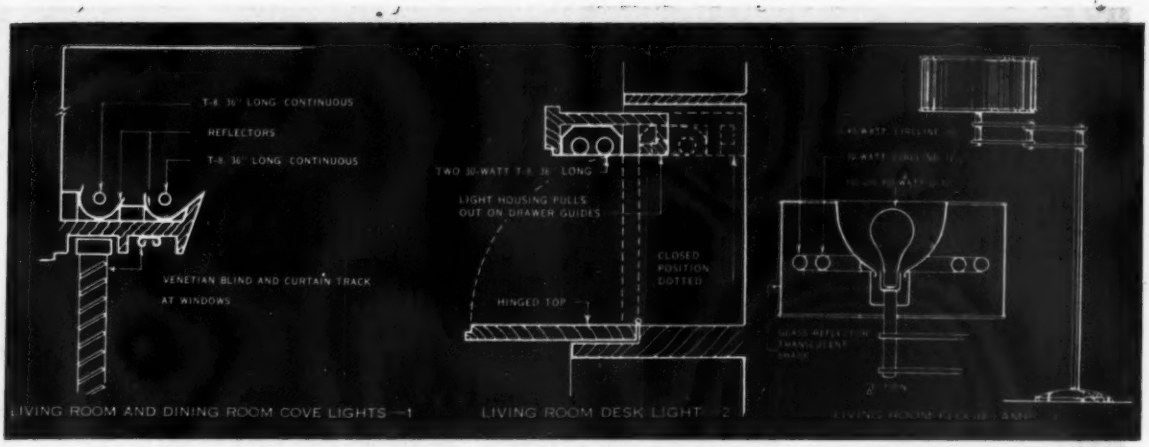
Four men of wide experience in architecture and design were asked to design lighting effects for homes of the future. They were given a free hand. Each planned a home in the moderate price bracket. The results were typical of the single study described here. They indicate what can be expected when serious and informed designers turn their attention to the problem of lighting the home.

The illustrations and descriptions which follow apply to a small home designed by Theodore Criley, Jr. The living room has a cove down both sides at the level of the tops of the windows to assure a better spread of light across the ceiling. The recessed davenport and the built-in desk each have their own localized lighting. The latter is illustrated on the next page. The former consists of a panel in the bottom of the soffit in which four 48-inch fluorescent lamps are placed. For closeup lighting and near eye-work the floor and table lamps illustrated above are drawn into play.

Too often coves are suggested within 6 to 8 inches of the ceiling. This greatly limits the effective spread of light on the ceiling and too often introduces high ceiling brightness above the cove. Conventional practice also employs coves on all four sides of a room. In this present design neither of these practices is employed. The distance from the cove to the ceiling is approximately 18 inches. This is attained through a cornice design developed to fit into the wall elevation at the tops of the windows, which are approximately 7 feet above the floor. These dimensions assure a reasonably good ceiling spread of light, and since the room is not unduly wide, approximately 16 feet, the effect will be satisfying. The simple cove reflectors are extended upward on the side toward the wall to minimize the direct light in that direction. One-inch diameter lamps are used with directive-type reflectors since this combination projects



This diagram and the schedule on the next page show Architect Criley's outstanding plan for a modern, well lighted home. Numbers refer to the lighting units in the schedule and in the diagrams.

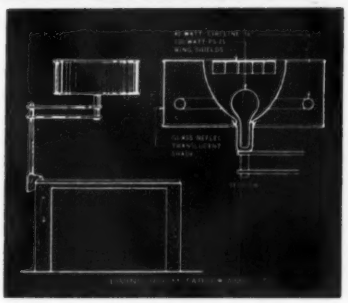

T-8, 36" LONG CONTINUOUS
REFLECTORS
T-8, 36" LONG CONTINUOUS
VENETIAN BLIND AND CURTAIN TRACK AT WINDOWS
TWO 30-WATT T-8, 36" LONG
LIGHT HOUSING PULLS OUT ON DRAWER GUIDES
CLOSED POSITION DOTTED
HINGED TOP
LIVING ROOM AND DINING ROOM COVE LIGHTS —1
LIVING ROOM DESK LIGHT —2

light across the ceiling more effectively.

While the section sketches speak for themselves, the details deserve some study. A considerable ingenuity, consistent with the various architectural expedients for extracting large returns from small space, has gone into the several features of detail shown on these pages.

The cove along the fireplace side of the "living-dining room" extends to the far wall of the dining room. This element is then on the same side as the outer windows and is not carried across the end of the room or along the right-hand wall. For the service it must perform, it should be adequate and its simple flow of light from one side instead of from three sides should prove to be very agreeable. This dining end of the room is also 3 feet narrower than is the living room end.

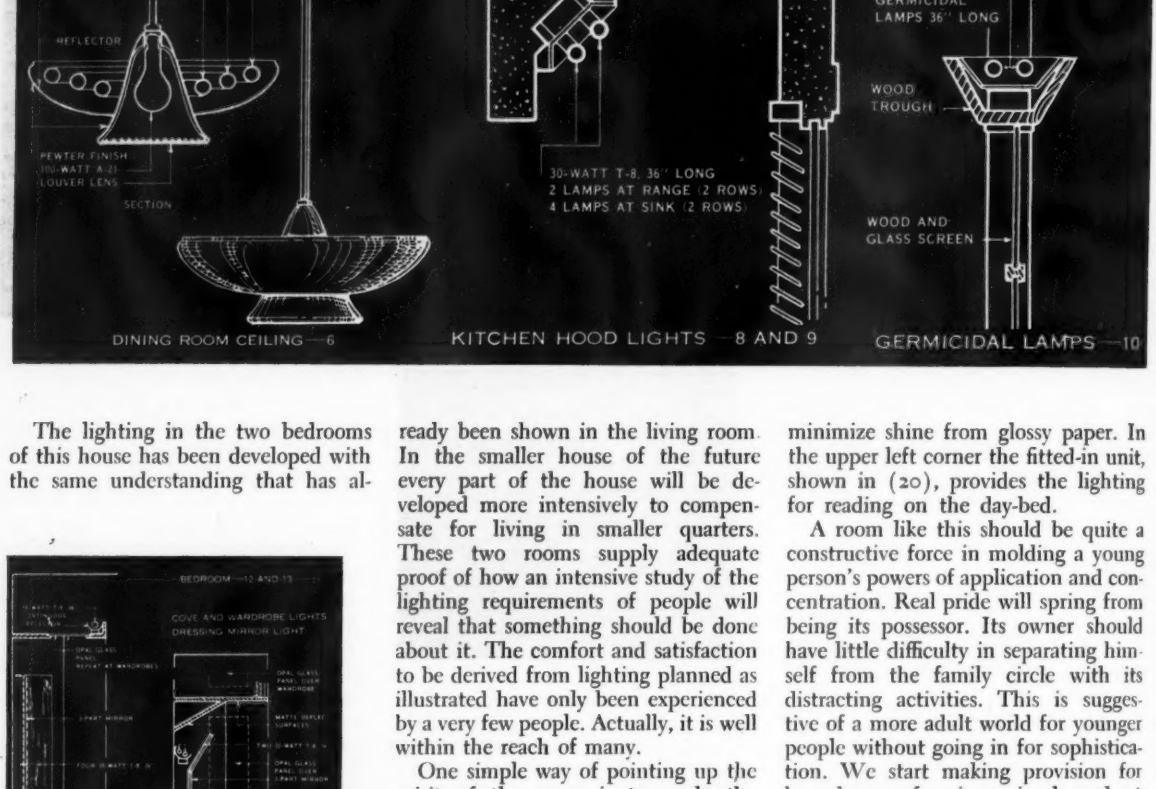
Each of the dining rooms in this series of designs in one way or another contains the means for obtaining a



predominance of light on the table top. This objective is a desirable one since the table, the food placed upon it, and people seated are held together more intimately and easily with this distribution of light. Each design also has the means for supplying generally distributed light. This design uses a cove on one side of the room; another uses the light reflected from curtains drawn across windows on two sides of the room; the third uses light reflected from one wall as well as some ceiling light from the central fixture; the last provides some additional general lighting from wall brackets.

It is evident that more attention is due the arrangement of space for clothes storage and the lighting of such spaces. Mr. Criley combines indirect lighting for the entire room with the lighting of the wardrobe. At the place where the vanity dresser occurs the concealed overhead lamps provide light down over the mirror. This in itself represents a good start for the mirror, but additional lamps are placed back of the side mirror panels to reflect light directly on the face. The sketch (12, 13) shows some of these details. Designers have often sought to provide a bed reading light that would limit the light to either bed when so desired. The design shown (14) illustrates how it is to be accomplished here.

Room Name	FIXTURE No.	Description	Watts
Living-Dining Room	1	Cove Lights—T-6 and T-8 Continuous	600
	2	Desk Light—Two T-8, 36" long	60
	3	Flush Panel—8" x 108"—Four T-12, 48" long	160
	4	Floor Lamp—40W and 30W Circ. and 100-200-300	370
	5	Table Lamp—40W Circ. and 150W PS-25	190
	6	Dining Room Ceiling Fixture—40W, 30W and 20W Circ. and 100W A-21	190
Kitchen	7	Two Enclosed Half Cylinders—Two T-12, 48" long each	Each 80
	8	Hood Lights—Four T-8, 36" long	120
	9	Hood Lights—Two T-8, 36" long	60
	10	Two Germicidal Lamps, 36" long	60
	11	Breakfast Nook Ceiling Fixture—100W A-23 Silvered Bowl	100
Bedroom No. 1	12	Cove and Wardrobe Lights—T-8 Continuous	120
	13	Dressing Mirror Lights—Four T-8, 36" long	120
	14	Reading Lights—Head of Bed—Four T-8, 18" long	60
Bedr'm No. 1 (Cont.)	15	Table Light (I.E.S.)—50-100-150 PS-25	150
	16	End Table Light (I.E.S.)—100W A-21	100
Night Lights	17	10-watt S-14 Lamps in Louver Fixture, similar to Aisle Lights, recess into wall near Base Switch from Bedsides.	20
Bath	18	Combination Fixture—Two 150W R-40; Two 60W A-19; One Drying Lamp 250	670
Bedroom No. 2	19	Ceiling Fixture—Four 40W A-19	160
	20	Bed Lights—Two T-12, 24" each	Each 40
	21	Desk Lights—Two T-8, 18" each	Each 30
Hall	22	Exposed Clg. Mounted—T-12, 24"	Each 20
Outside	23	Flush Panel 12" x 24" Two 60W A-19	120
	24	Flush Panel 15" x 36" Four 60W A-19	240
	25	Flush Panel 10" x 10"—60W A-19	60
	26	Illuminated Street Number	
	27	Garage Light, Enclosed Globe—100W A-21	100
	28	Yard Floodlights—150W PAR-38	Each 150



The lighting in the two bedrooms of this house has been developed with the same understanding that has already been shown in the living room. In the smaller house of the future every part of the house will be developed more intensively to compensate for living in smaller quarters. These two rooms supply adequate proof of how an intensive study of the lighting requirements of people will reveal that something should be done about it. The comfort and satisfaction to be derived from lighting planned as illustrated have only been experienced by a very few people. Actually, it is well within the reach of many.

One simple way of pointing up the spirit of the room is to apply the motif "air travel" to the central fixture. This motif is particularly fortunate, for its implications would not be conveyed by a small overbright fixture. The latter with its large lower plastic panels supplies semi-indirect lighting at low brightness.

Workmanlike direct-lighting fluorescent desk lamps can be positioned for the most effective use of light and to minimize shine from glossy paper. In the upper left corner the fitted-in unit, shown in (20), provides the lighting for reading on the day-bed.

A room like this should be quite a constructive force in molding a young person's powers of application and concentration. Real pride will spring from being its possessor. Its owner should have little difficulty in separating himself from the family circle with its distracting activities. This is suggestive of a more adult world for younger people without going in for sophistication. We start making provision for long hours of serious visual work at home just as we would for the individual at work in later years. It is difficult to conceive an investment that could pay bigger dividends in individual development and eyesight conservation.

The "daylight kitchen" is achieved in one of its realistic forms here. The central general lighting is generously

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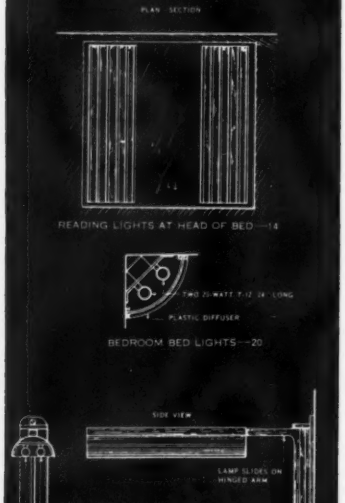
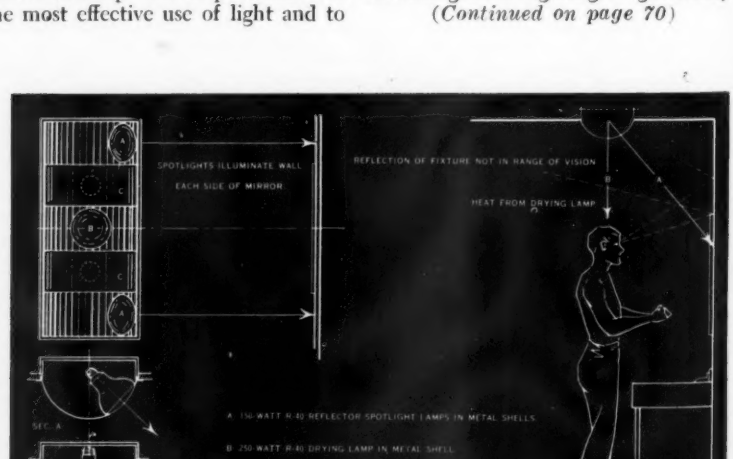




Individual Motor Power Factor Improvement Versus the Group Capacitor Method

By W. C. Bloomquist and W. B. Boice*

THE USE of a common motor controller for switching the motor and the capacitor as a unit has become increasingly popular due to the elimination of one switching device and because of the operating convenience. The capacitor is switched in and out of service with its associated motor and therefore tends to eliminate overvoltage usually associated with light load conditions in a plant. This unit-switching arrangement is economically attractive when only a few motors are involved or when there is no diversity among motors. In those plants having a large number of motors and diversity among motors in operation, such as is common in industrial plants with a large number of motor-driven equipments, group capacitors automatically switched in several steps are usually more economical than individual motor power factor improvement. Operation with automatic control results in the functional equivalent of individual motor power factor improvement since the capacitors may be switched in blocks as dictated by the load requirements.

Several studies were made to determine the relative economics of plant power factor improvement by means of capacitors with individual motors and the group capacitor method.

The price comparisons were on the basis of the *same amount of total power factor improvement*. For example, when all motors are connected to the line at the same time, so that the motor diversity factor is (1) the capacitor kva required is the same for the two methods. When 50 per cent of the motors are on at the same time, corresponding to a motor diversity factor of 2, the group capacitor rating need be only 50 per cent of the total capacitor kva connected to all motors. The motor diversity factor is Total motor connected hp divided by Total hp of motors in operation.

The price ratio capacitors (individual/group) was almost equal for the 220, 440, and 550 volt equipments for the same percentage of motors on the bus, so the average price ratio for this voltage range was used. The price date was based on standard non-inflammable liquid-filled capacitors used for power factor improvement.

Example I. Power factor improvement of individual motors versus group method of power factor improvement for service below 600 volts.

The price ratio of individual versus group capacitors for typical plants with motors from 3 to 50 hp is shown on Figure 1, plotted as a function of the per cent of motors in operation.

Note from Curve A of Figure 1 that the group capacitor method with manual switching is more economical than the individual motor method even for the 100 per cent condition when all motors are in operation. This is true because the price of capacitors in dollars per kva is higher for small units than for larger units such as commonly used with the group capacitor method.

Curve B shows the price ratio when the automatic control and switching feature is incorporated with the group capacitor method. (This is the operating equivalent of the individual motor capacitor method). Note that even with the automatic control feature the group capacitor method is economically more attractive than the individual motor method.

Curve C shows the price relationship basis of the same capacitor cost, in dollars per kva, for the two methods and clearly indicates the effect of diversity in the motors in operation.

Curve A will be very nearly correct for all applications. Low voltage manual switching devices are inexpensive so the cost of the switching device is a small part of the total capacitor

*Both of General Electric Co., Schenectady, N. Y. This article is adapted from a paper presented at the AIEE Winter Technical Meeting, New York, in January, 1945.

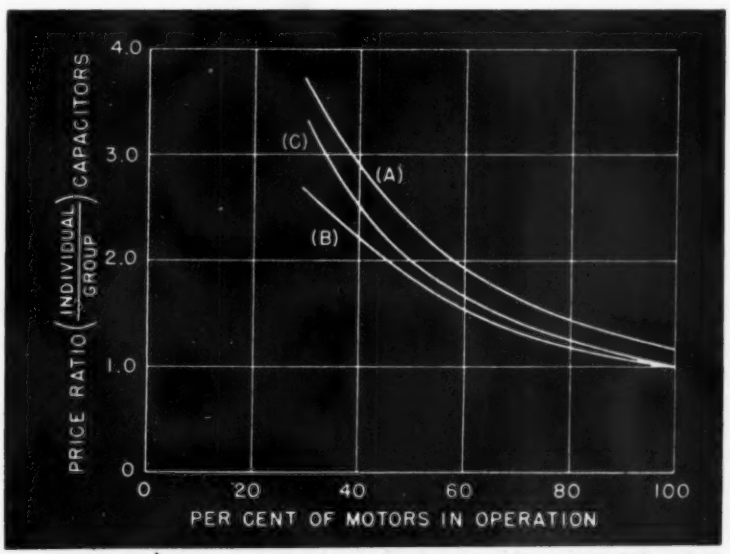


Figure 1. These curves show how the price ratio (individual/group) of capacitors varies with the per cent of motors in operation. It covers only installations having service voltages below 600 volts. Curve A is for group capacitors with manual switching. Curve B is for group capacitors with automatic control and switching. Curve C shows equal capacitor cost in dollars per kva for individual motor and group capacitor methods.

equipment cost. Curve B is representative for medium and large size industrial plants. For small plants or plants having a small connected motor load the price ratio will be lower since the cost of the automatic control and switching feature becomes a large part of the capacitor equipment cost when small capacitor banks are used. Generally, however, the automatic control feature is not necessary in the small plants.

Example II. Group capacitors for diversified motor load and individual capacitors for selected large motors for service below 600 volts.

In those applications involving a large number of small motors and some large motors it is good practice to use group capacitors for the diversified motor load and individual capacitors for selected large motors. Large motors require large capacitor units which have a low unit price approaching that of the group capacitor method. A low diversity factor among the large motors favors the individual method of power factor improvement. If the motor diversity factor is greater than about 1½, the group capacitor method is generally more economical.

The combination of group capacitors for the diversified load and individual capacitors for seleeted large motors, offers the operating benefits associated with unit switching and thus helps prevent overvoltage during light plant load conditions. Consequently, automatic control is not usually required for the group capacitors used in such cases.

Example III. 2300 volt service.

The group capacitor method may not be economically attractive for 2300 volt (or higher voltage) equipments unless the motor diversity factor is greater than 1½ to 2. This is true because the cost of the capacitor switching device, usually a power circuit breaker, is an appreciable part of the total equipment cost. Another reason is that motors for 2300 volt service are usually 100 hp or larger and require capacitors of the larger ratings which have a relatively low unit cost.

Applications involving 2300 volt equipments should be considered individually.

Conditions favorable to individual motor power-factor improvement.

(1) *Capacitors automatically switched.* Capacitors will be on only when needed and therefore will minimize plant voltage rise at no load.

(2) *Application engineering is simplified.* Capacitor rating may be selected from Table 1. (See March issue.)

(3) *Flexibility for plant rearrangements.* When plant changes require rearrangement of equipment, the capacitor and motor can be moved together thus insuring proper power factor improvement of the motor at any location.

(4) *Simplified installation.* The capacitor and motor starter may be in a unit housing.

Conditions unfavorable to individual motor power-factor improvement.

(1) *Price is higher for equipments below 600 volts.* This is shown in Figure 1. The price comparisons are on the basis of actual selling price and not on the installed basis. If the installation cost were included, the relationship would probably be even more unfavorable to the individual motor method since, generally, many small units cannot be installed as cheaply as a few large racks in a group. This is particularly true when the type of equipment furnished for group capacitor installations is shipped complete as a unit ready for service. Even though the unit type capacitor and starter is used, which does not require any additional installation expense for the capacitors, the group capacitor method is cheaper.

(2) *Poor use of investment.* This is true when all motors are not on at the same time. In the average industrial plant only 25-75 per cent of the motors are connected to the bus at the same time.

(3) *Lack of interchangeability of motor equipment.* 220 volt motors can usually be recommended for 440 volts but capacitors cannot. It is possible to use a 460 volt capacitor on 220 volts, but resulting in approximately 25 per cent of the rate kva. A 220 volt capacitor cannot be used with a 440 volt motor, although two 230 volt capacitors can be connected in series for 440 volt motor service.

(4) *Limitations in location.* Capa-

(*Continued on page 70*)

Appliance Dealers Find Churns Among Top Sellers

In selecting electrical appliances to sell the farm and suburban dweller after the war, don't overlook the electric churn. That is the advice of E. L. Chisenhall and Mrs. O. P. Moore, proprietors of Hotpoint Home Appliance Company, Birmingham, who have sold scores of them during the war and could sell more if available.

"We sold all we could get and we had a pretty constant supply," said Mr. Chisenhall. "In fact we sold them so fast we could hardly keep a display. It seemed that the scarcer butter and milk got, the more churns we sold. After all, butter from your own cow is not rationed. It is surprising how many families living on the edge of town now keep cows. They are our best customers for churns."

Churns sold by this concern are of the dasher rather than the spinner type, powered by a 1/6 hp motor.

Retailers Guide to Radio Advertising

HARVARD University Press has just released Prof. C. H. Sandage's 280-page book, "Radio Advertising for Retailers." This book is the result of a comprehensive study of the use of radio in 1942 for local and regional advertising, undertaken by Prof. Sandage at the graduate school of business administration at Harvard University. The author is head of the department of marketing at Miami University.

The study is based on about 400 interviews with retail advertisers, radio stations, managers, and advertising agency executives, and on questionnaires returned from 1,011 retailers and 216 stations.

The book covers the extent to which radio has been used by various local business firms; the extent to which radio has been able to sell specific merchandise; the amount of money that must be spent in radio to produce satisfactory results; radio station cooperation with local advertisers; the use of agencies in local radio advertising, etc.

Conclusions reached by the author are generally as follows:

First, radio is of primary value to firms whose customers are drawn from most sections of a city or adjacent rural areas, and least effective for neighborhood shops.

Second, most local or regional firms should not use radio as a major advertising medium unless prepared to employ it for at least six months.

Third, successful use of radio is reported as frequently by small as by large retailers.

Fourth, firms with annual advertising expenditures of $50,000 or more generally should spend at least 15% of their total ad budget on radio, and smaller firms should spend as much as 20% on radio if they are to achieve satisfactory results from the medium.

Fifth, good results can be obtained either from 15-minute and longer programs or from spots, but he believes that retailers and stations will both suffer in the long run from overemphasis of spot announcements, which in 1942 accounted for 58% of local radio ad budgets.

Sixth, retailers must carefully coordinate radio with other promotion and merchandising, as for example by giving radio time to promoting popular items and not to promoting merchandise that has a low sales rating.

Among many findings of fact given, and explained by graphs, are those that more than 50,000 local stores used radio in 1942; department stores spent on the average only 5.1% of their ad budgets in radio; more than one-third of local radio users reported highly satisfactory results, and only six reported no success; only 16.5% of those reporting made any use of agencies in connection with their 1942 radio efforts, although 53.8% of retailers in cities of 500,000 population and over used agencies.

"Handy Andy" shops like this are springing up all over the country—sometimes their work is good and other times it causes repair work to be sent into regular electric shops, where proper equipment and repairs are available.

Retail Chain Planned For Kansas, Missouri

Wright Appliance Stores Company, a newly organized concern to sell electrical appliances in two states, has opened temporary offices at 1625 Grand Avenue, Kansas City, Mo. Gary Wright is head of the organization.

Offices and warehouse will be maintained in Kansas City but no plans have been made for operating a retail store there. Store spaces have been leased in Junction City, Lawrence, Atchison, Leavenworth, Manhattan and Ottawa in Kansas and the Missouri towns in which store buildings have been leased are Boonville, Brookfield and Marshall.

The company has not opened for business in any of the locations because of the absence of merchandise and have turned the buildings over for use by the Red Cross and patriotic organizations in each town, pending the date when they are officially opened as appliance stores.

Mr. Wright said the company would retail a full line of electric appliances including refrigerators, washing machines, electric kitchens and radios.

All the stores leased have been redecorated and remodeled and are ready for the flow of postwar appliances.

Jobber Books Million In Postwar Orders

ELECTRIC Sales and Service Company, Inc., of Miami, Fla., already has its postwar selling campaign well under way. In fact, as of February 1, the firm has on its books future delivery orders for electrical appliances totaling $1,000,000.

Of course these orders cannot specify even an approximate delivery date or price. They represent only dealers' best estimates of their minimum appliance needs for initial shipment, when the production of such merchandise for civilian use starts rolling again.

In other words, by filing his order now to cover his estimated requirements, the individual dealer gives himself a "priority rating" for delivery, when it can be made.

And dealers, in their turn, are taking "priority orders" from their customers' commitments for over 100 washing machines.

Coming from approximately 135 hardware, furniture and exclusive appliance dealers on the Florida East Coast from Key West to Vero Beach

and on the eastern side of Lake Okeechobee, the advance orders accepted by Electric Sales and Service cover major appliances only. These include washers and ironers, water and space heaters, ranges, radios, refrigerators, air-conditioning equipment and "deep freeze" units.

"From all I can learn," D. R. Thurman, Electric Sales' president, points out, "electrical appliance manufacturers are bound to be much farther behind on their return to peacetime production than they were after World War I. Consequently, dealers who do not have the protection of advance orders are likely to find themselves caught in a distribution 'bottleneck'."

Combining the wholesaling of electrical appliances with that of automotive electrical and other parts, Thurman covers his territory with 3 salesmen, besides himself. In addition to its selling activities, the company offers shop service on its own lines of electrical appliances and on automotive electrical units, such as starters, generators, magnetos and current regulators.

Kansas City Dealer Providing Parking

Extensive remodeling is being done to the building of the Kansas City Stove and Electric Company, Troost and Brush Creek Road.

Part of the building has been set back thirty feet to provide space for customer parking in front of large display windows. Parking customers will have a full view of the appliance display floor and it is conceivable that they may select appliances and agree on choice of models from the seat of their car.

A full line of electric appliances will be handled when this merchandise is available again. They have been established at this location for many years.

Some Ideas for Postwar Electric Range Design

By H. J. Wilkinson

IF THE AVAILABLE generating capacity is to be absorbed after the war, the advantages of electric cookery should be made available to all, even to persons of very moderate means. This is going to call for some radical changes, both in equipment design and installation practices, and I would like to offer some of my own ideas as to these changes.

Perhaps first, I should qualify myself by stating that I have been servicing electric ranges for a large electric utility for a little over 20 years.

I might begin my ideas at the transformer on the pole that supplies the usual 110/220 volt, 3-wire secondary with grounded neutral. The ideal load for maximum transformer efficiency is on the 220-volt circuit, or evenly divided between each hot wire and the neutral so that there is no current flowing in the neutral wire.

This brings me to the first change in the design of the range. Why bring the neutral to the range at all except for grounding the range frame where this method of grounding is permissible? Why are more than three heats necessary for surface units on a moderately priced range? A large percentage of the range owners today have been using 3-heat units for years and find them perfectly satisfactory. Some ranges have only the 2-heat or "high" and "low" positions for the surface unit switches.

For the range I have in mind, I would like to suggest this equipment: one 2000-watt and two 1200-watt, 230-volt surface units, each controlled by a 3-heat switch with slightly wider spacing between the terminals on the load side. The oven to have one upper and one lower 1500-watt, 230-volt units, both controlled by one switch that will turn on either one or both units, the oven temperature to be automatically controlled by the present type thermostat.

Such a range can be installed with small two wire, No. 12 cable similar to present AEIC entrance cable with stranded armor wire for protection from mechanical injury or for grounding the range frame to the neutral. A 2-pole switch with manual reset thermal overload protection for 30 amperes should give adequate protection for the wiring and the range. There will be few occasions when the entire range will be turned on long enough to trip this switch from overload.

On range circuits of the average length, No. 12 wire will carry the average cooking load with practically no voltage drop and even with the full load of 32 amperes on No. 12 wire, the voltage drop would not be objectionable or create a hazard for the length of time the full load would be on.

Can there be any question about the personal safety of the operator of the strictly 220 volt range? I should think not, considering heat with load balancing type switches. The present day

(Continued on page 70)

When W. L. Patrick, proprietor of Patrick's Radio Service, Laurel, Miss., gets out of the Signal Corps after the war he won't have to worry about a job. His wife has carried on the business, established in 1930. Like other dealers, Mrs. Patrick has been handicapped by a lack of help and a lack of parts, but she has managed to give radio service to her community and has increased the business volume. Besides filling a man's shoes for the duration, she is helping the war effort by putting all profits from the business in war bonds.

South Leads the Nation in Electrical Hay Drying

THE SOUTH now leads the nation in electrical hay drying, and manufacturers are making plans to provide additional equipment just as soon as possible.

That was made known during a Barn Hay Curing Conference, held in Knoxville, Tenn., attended by 220 representatives of manufacturers, electrical engineers, agricultural engineers, and others from 30 states. Besides discussing what has been accomplished, the conference heard plans for the future, and inspections were made of successful hay driers in which the Tennessee Valley Authority and the University of Tennessee had cooperated on studies. The conference was held prior to the request for calling off meetings.

B. G. Silberstein, of Ilg Electric Ventilating Co., was selected by the fan manufacturers to represent them in a discussion of fans. He explained that the type of fan selected is dependent on individual taste and what is needed to meet the specific problem. There are two types of fans generally used for hay drier application, the centrifugal and propeller. The centrifugal type consists of a fan rotor or wheel within a scroll type housing, and can be driven by either belts or a direct connected motor. The former is the most common.

The motor load on a centrifugal fan is in proportion to the amount of air delivered. The centrifugal type fan can be further broken down into the forward curved blade and backward curved blade types. The forward curved blade has been the most popular so far, probably due to its being the lower priced of the two. The backward curved blade has the advantage of not fluctuating the motor load in cases of fluctuating static pressure and is a somewhat more efficient type fan. This is a particular advantage where a power distributor limits the size of single-phase motors to 5 hp.

The propeller type fan consists of a propeller within a mounting ring which includes the drive mechanism. They also can be furnished for either direct connection or belt drive. The high speed fans of this type produce considerable noise which in some cases might prove objectionable. The characteristics of the propeller fan are opposite those of the centrifugal fan in that as the static pressure increases, the horsepower demand increases.

Mr. Silberstein said that at one session of the conference there had been considerable difference of opinion as to the amount of static pressure encountered. He suggested that ¾-inch static pressure be used for calculating fans needed initially and that allowance be made in providing about 20 per cent more motor capacity than it appears the fan installation will need.

It was pointed out that the size of fan to be used is largely a matter of economics, varying between a high cost, high efficiency, and a low cost, relatively inefficient type.

R. C. Miller, of Ohio University, said that in cases where a 5 hp motor is the largest permitted on rural lines, a fan should be selected that is large enough to deliver up to the capacity of the 5 hp motor without overloading it.

A. R. Hemker, of General Electric, reported that a number of single-phase motors for hay drying should be ready for delivery this spring. They can be purchased through regular agents and distributors.

A Westinghouse representative said Westinghouse would have motors available but stressed the urgent demand being placed upon them by war industries and the difficulties manufacturers faced in meeting demands for both war and agricultural use.

M. M. Johns, of the University of Tennessee, reported that in Tennessee in 1944 about 20 per cent of the 25 installations were 3 hp; 40 per cent 5 hp; and 40 per cent, 7½ hp.

General Electric demonstrated a magnetic switch which is designed for direct manual operation or for plugging in a time switch for automatic operation. There is also a second plug-in for remote control. The assembly is called a "hay drying starter." The 5-hp, 220-volt unit costs about $27, which is about $5 more than an ordinary starter. The time switch costs

(Continued on page 68)

Increasing interest is indicated in electrical hay drying. Shown here are representatives of electrical manufacturers, agricultural engineers, and others taking notes as they examine an electrical hay drier installation on the R. N. Moore farm, in Tennessee. More than 220 were in attendance at the Hay Curing Conference held in Knoxville. It was disclosed at the meeting that the South now leads the nation in electrical hay drying.

Compensating Windings for Direct Current Machines

THE ACCOMPANYING diagrams will help to clear up much of the misunderstanding that exists with regard to compensating windings on direct-current motors and generators.

Figure 1 shows a stator of a non-compensated d-c generator. The main pole has a smooth face and the commutating poles are located between the main poles. The main shunt and series field coils provide excitation for producing the main pole flux. The commutating field coil provides excitation for the commutating pole and must be sufficiently strong not only to neutralize the field strength of the armature, but to force the commutating flux across the commutating pole air gap into the armature for commutation purposes.

Figure 2 shows a stator of a compensated d-c generator. The construction is similar to that of Figure 1 except that slots are punched in the pole faces of each main pole through which compensating bars or windings extend. These bars are connected in series with each other in such a manner as to be concentric around each commutating pole. In other words, the compensating winding can be considered as turns taken off of the commutating field coil, spread apart, and buried in the pole face, still surrounding the commuating pole. Comparing Figure 2 with Figure 1 it will be noted that the compensating winding acting as the remaining turns.

The magnetic field, per pole pitch of the armature, set up by the current in the armature conductors opposes and distorts the main field set up by the excitation of the main pole, in the case of the non-compensated machine. This causes a net loss of main pole flux with load current, giving a poor voltage regulation curve for a generator or a poor speed regulation in the case of a motor. In a compensated machine, however, the compensated windings are so proportioned that they will oppose this armature field, varying in strength with it since the compensating winding is connected in series with the armature.

Two Functions Served

Thus the turns in the compensating winding serve two functions: (1) as part of the commutating pole winding, and (2) as neutralizing turns to oppose and eliminate the armature reaction. By doing the latter, they leave the main field practically undistorted and unchanged in shape and strength and improve the shape of the voltage regulation and speed regulation curves for d-c generators and motors.

The compensating winding also serves another purpose and that is to improve the overload commutating capacity of a d-c machine by reducing the amount of leakage flux from the commutating pole to the main pole, since these turns lie physically outside of this leakage flux path. Compensating windings add to the cost of a machine and are, therefore, used only in those cases where the performance required justifies its use.

Figure 3 shows the stator of a synchronous converter with damper windings located in the main pole face. The damper windings are bare copper, short circuited upon themselves, and the current in them is produced " inductively" by the magnetic field of the rotor cutting them. The conductors are smaller in size than those of the compensating windings because the duty upon them is much lighter. The compensating winding has to be insulated where it goes through the slots in the pole to stand full line voltage to ground, since this winding is "conductively" excited by being connected in series with the armature of the d-c machine, thus carrying full line voltage and current.

Figure 4 is a diagram showing connections of commutating and compensating field windings.

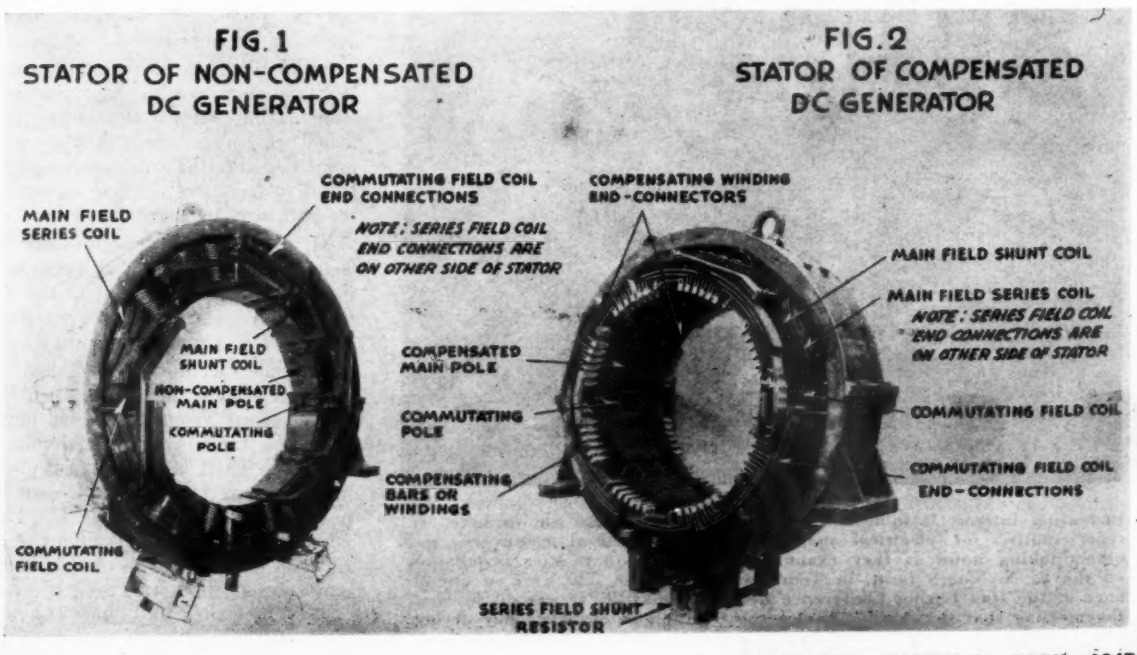


FIG. 1
STATOR OF NON-COMPENSATED DC GENERATOR
MAIN FIELD SERIES COIL
COMMUTATING FIELD COIL END CONNECTIONS
NOTE: SERIES FIELD COIL END CONNECTIONS ARE ON OTHER SIDE OF STATOR
MAIN FIELD SHUNT COIL
NON-COMPENSATED MAIN POLE
COMMUTATING POLE
COMMUTATING FIELD COIL
FIG. 2
STATOR OF COMPENSATED DC GENERATOR
COMPENSATING WINDING END-CONNECTORS
MAIN FIELD SHUNT COIL
MAIN FIELD SERIES COIL
NOTE: SERIES FIELD COIL END CONNECTIONS ARE ON OTHER SIDE OF STATOR
COMPENSATED MAIN POLE
COMMUTATING POLE
COMMUTATING FIELD COIL
COMMUTATING FIELD COIL END-CONNECTIONS
COMPENSATING BARS OR WINDINGS
SERIES FIELD SHUNT RESISTOR

FIG. 3
STATOR OF SYNCHRONOUS CONVERTER

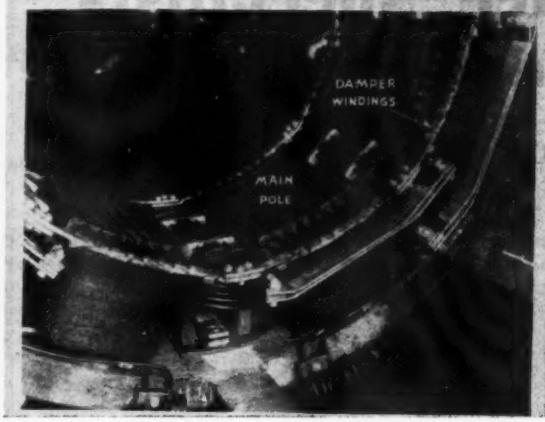
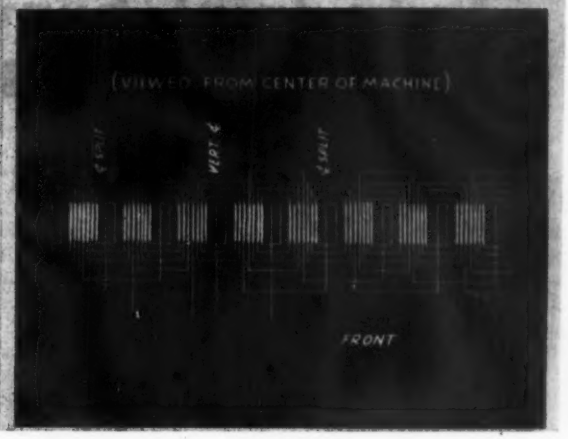
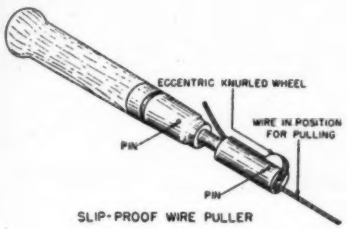


FIG. 4
DIAGRAM OF CONNECTIONS



Speed and Safety Are Features of Wire Puller

An easily constructed wire puller, devised by Carl Schreck of General Electric's Schenectady Works Regulator Division, has improved the method of tightening wire with pliers, especially for women who are now doing the job.



SLIP-PROOF WIRE PULLER

A knurled, eccentric wheel ⅛ in. thick and ½ in. in diameter is the secret of the new device. It is mounted in a piece of drill-rod with a milled clot to accommodate both the wire and wheel. The wire is threaded into the slot and under the wheel which is then rolled back toward the handle to apply pressure on the wire. The grip is automatically increased as the operator pulls the tool to tighten the wire.

The drill-rod is approximately 2½ in. long of ½ in. stock. The shank end, however, is turned to a ¼ in. diameter and is fitted and pinned in a wooden handle. The pin, knurled wheel, and rod should all be hardened.

Auto-Parts Coil Winder

Loaded up with repair orders on high priority motors, Larry Alldritt, of Alldritt Electric Motor Company, Miami, Fla., needed extra but unavailable coil forming apparatus. Having some spare parts, including a winding head and counting mechanism, he built the rest of the required equipment out of salvage.

As a first step, he constructed a 2-deck support stand out of 1½-inch angle iron. On the lower deck of this stand he mounted a reconditioned ½ hp., a-c motor having variable speeds ranging from 600 to 2,000 rpm. By means of a step-down belt pulley and a self-contrived transmission clutch and brake device, the turning speed of the head is brought down to normal winding requirements.

Mounted on the stand's upper deck, the clutch and brake portion of the apparatus came from a Model T Ford car. The transmission was salvaged from an old Chevrolet, the shift lever of which was cut off to a length of about 12 inches. The transmission shaft operates both head and counter. The brake control rod was extended by welding on a piece of round stock and terminates in a foot pedal near the floor.

This equipment, according to Alldritt, has proven very satisfactory. And one thing he especially likes about it is that the brake action is positive, and stops the revolution of the winding head instantly.

The Sinews of a B-29; 255 Electric Motors

The giant B-29 — known as the AAF's "all-electric plane"—has 255 electric motors.

More than 7,900 watts of electric power are required to operate its radios—enough to run 105 home cabinet sets. (435 radio tubes are in each of the Boeing superforts.)

And, when all the lights are in operation, 2,100 watts are needed—enough to light a house using thirty-five 60-watt bulbs simultaneously. (Each fort has 221 light bulbs.)

The four engines of the B-29 generate 8,800 horsepower, which could provide enough electricity to supply a small city.

Tip on Factory Lighting

In installing fluorescent lighting in factories, too much contrast between localized lighting and the general or overall brightness must be avoided, electrical manufacturers advise. The "4-to-1 rule" is acceptable. That is, if 100 footcandles of light are needed at a work bench, about 25 footcandles of general illumination are necessary in the remainder of the room.

Industrial Service Specialists Meet War Industries' Needs

By Baron Creager

MANY SOUTHWESTERN industrial firms are paying for expert maintenance service without getting the service. This thought has led a Fort Worth, Texas, electrical company into a profitable field which has, at the same time, greatly aided the war effort.

It is pointed out that in many such plants, a general handy man serves as electrical maintenance engineer. Such handy men have been found to be using motors three times as big as the job called for.

In some such plants which this electrical company has served, it was found that the electrical equipment had suffered from gross neglect. This results in a constant loss of current, constant fire and other hazards and, sometimes, even the loss of life. That's why it is maintained that many plants could have expert maintenance service for what neglect is costing.

One electric company that has been giving particular attention to the needs of industrial plants is the Foshee Electric Company, operated by F. T. Foshee and G. E. Sossaman. Theirs is the type of business that provides a well rounded service, from rebuilding motors of any size to wiring and maintenance, on a 24-hours-a-day basis.

They do industrial lighting, too, but they are so sold on the opportunities for rendering real maintenance service to industrial plants that their emphasis is on that side of the business. That does not mean that they neglect the motor repair business. On the contrary, their shop is one of the most completely equipped in the Southwest for motor repair. However, they find maintenance opportunities through their motor business and, in fact, their industrial wiring and maintenance service is fed by the motor business.

How this works out in practice is illustrated by a job they handled recently.

For a Fort Worth textile mill, the Foshee company had been doing from

The Foshee Electric Company, of Fort Worth, Texas, is capitalizing on the industrial maintenance phase of their operations in a big way. They have brought to the attention of nearby industrial plant operators that a poor maintenance policy usually costs more in the long run than expert maintenance. Typical of some of the industrial work this organization has handled is the overhead bus duct of the Crown Machine and Tool Company shown at the left. Above, a work level view of the Crown plant showing lighting. Also, note the conduit connections from the machines to plug-in boxes on overhead bus duct.

$500 to $800 worth of motor repair work each month. Ownership of the textile plant changed hands, but before the sale was consumated, the prospective buyers asked Foshee and Sossaman why the electrical maintenance expense had been so high. The answer was neglect.

After the new owners took over,

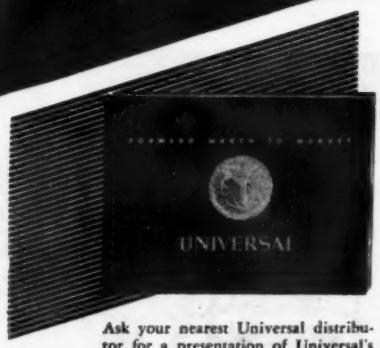
$3,000,000. worth of PRODUCTION ADVANCEMENT*

• In addition to the million dollars being expended for redesign, over three million dollars is being spent to insure the production of even better Universal post-war appliances and housewares. New production techniques are being introduced . . . new systems to speed processing at lower costs are being installed . . . finer precision methods employed and "quality control" improved. The entire flow of materials "from metal to merchandise" is coming in for improvement all along the line.

What it Means to YOU!

• Every distributor and dealer should attach powerful sales significance to the expenditure of three million dollars for production advancement.

• "Quality Control" from metal to merchandise is one key to Universal post-war appliance leadership. It gives assurance that servicing will be reduced to a minimum, and points the way to new heights in utility and perfection. The combination of these factors will mean greater salability—greater dealer and customer satisfaction—*a greater value for the Universal franchise in your community.*



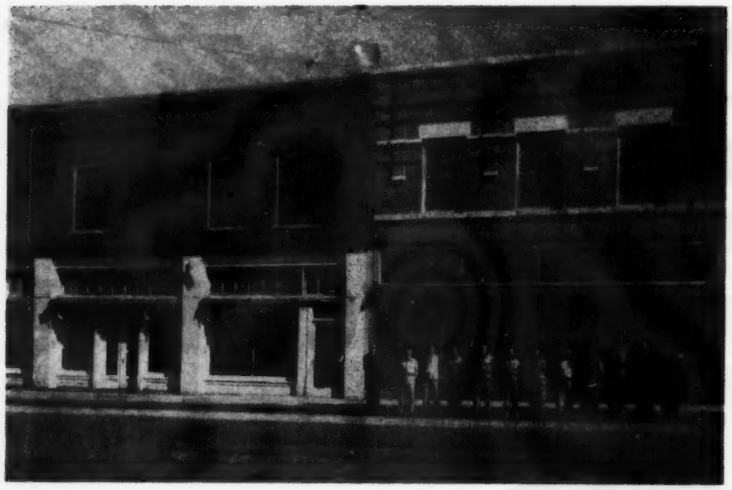
Ask your nearest Universal distributor for a presentation of Universal's "Forward March to Market." Call him today for full franchise information.

* **No. 2 in Universal's "Forward March to Market" Series.** *(No. 1 in the series "$1,000,000 Worth of New Design" appeared in January. In May issues, look for No. 3 in this series "42 Million Customers Worth of Good Will")*

UNIVERSAL

LANDERS, FRARY & CLARK · NEW BRITAIN, CONN.

Universal Electrical Appliances distributed in Canada exclusively by Northern Electric Company, Ltd.



Exterior of the Foshee Electric Company building in Fort Worth, Texas.

they authorized Foshee and Sossaman to remedy the condition. Foshee devotes most of his time to the motor shop and Sossaman specializes in wiring and maintenance, so Sossaman did this job. He relates:

"We surveyed the plant and then installed motor rated disconnect switches of the proper size and magnetic switches on each of the many motors used on the spinning machines in this mill. Then we put in flexible conduit protection for the individual motor connecting leads. Immediately the maintenance cost dropped 50 per cent.

"We knew there had been poor management of the electrical equipment in this plant, and we found big motors on little jobs and little motors on big jobs. But we eliminate the guess work by using clamp-on ammeters, as well as volt meters and other instruments. We check the load on the main feeders and trace it down to the outlying branch circuits.

"Most of the trouble in such plants comes from the branches. As a rule, branches are overloaded and sometimes they are overloaded as much as 100 per cent."

To make this service possible on short notice, the Foshee firm carries what the partners say is the Southwest's biggest stock of controller parts —magnetic switches, contacts, relays and holding coils. Having several thousand dollars worth of the necessary parts on hand at all times makes it possible for the firm to do fast work.

In one plant, a 200 hp motor failed. It was found that the compensator controls had failed, but because the parts were available, complete service was restored in an hour and a half. That is a common service failure, says Sossaman, who adds that it happens even to small motors.

At another plant making six-inch Navy shells, there was a complete breakdown in the main service. The Foshee company was on the job within two hours after being notified. They installed a 1200-ampere service switch and restored service 10 hours after beginning work.

But Foshee and Sossaman are most proud of their installation at the Crown Machine and Tool Company, Fort Worth, where production lathes and tool gauge equipment is produced for the Army and Navy.

It is the first installation in that territory of the overhead bus duct, of the 400 ampere, three-pole, 250-volt type. It is so satisfactory in every respect that this installation is expected to result in many more industrial overhead jobs.

Foshee and Sossaman expect this demand to be stimulated by the facts that the cost is less and that less critical material is required than in the conventional installation of the same capacity. Savings from 20 to 30 per cent in installation costs are cited. Flexibility is another advantage, since if a lathe, for example, is to be moved, it is only necessary to move the plug-in box for that machine to a new position. Carrying capacity is greater, since there is more air space around the ducts than in insulated conduit, thereby reducing the heat factor.

In this plant, 50 by 90 feet, the Foshee company also installed the lighting system, using the 40-watt, two-tube industrial type fixture. Sixty fixtures were necessary to give 40 to 50 foot-candles of light at the working level of all machines in the plant. An arrangement that provides five foot-candles of light at the working level is not surprising in industrial plants of the area, says Foshee.

He predicts a great boom in fluorescent lighting when materials are made generally available. "We could install many new fluorescent lighting systems now if they were premissible," he adds, "but this type, of course, is available only to those plants engaged in war work."

W. M. Harrison, Luke Williams and F. B. Williams, partners in the Crown Machine and Tool Company, were so pleased with the wiring and lighting installations of the Foshee company that they awarded the firm

(*Continued on page 68*)

Another industrial job recently completed by Foshee Electric Company was this installation of motor-rated disconnect switches, magnetic switches and protection for motor lead-ins which reduced maintenance costs by half in this textile mill.

FOR SAFETY'S SAKE . . . USE CONDUIT *(Full Weight Rigid Steel)*

WHENEVER a wartime building project is to be used for long-term, peacetime work, make sure that dangerous, short-lived wiring systems are replaced.

Replace all "emergency" systems with full-weight, standard-threaded, rigid steel conduit systems like the one shown here, and you can stake your reputation on their performance.

Youngstown's full-weight, standard-threaded, rigid steel conduit, long known everywhere under the familiar name of BUCKEYE, meets every exacting requirement of the National Electrical Code, furnishes full, permanent protection against dust, dirt, moisture, vapors, vibration, explosion, or other damage.

For maximum dependability, always specify BUCKEYE conduit. You can get it now through regular distributors.

THE YOUNGSTOWN SHEET AND TUBE COMPANY
Manufacturers of
CARBON, ALLOY and
YOLOY STEELS

BUCKEYE TRADE MARK YOUNGSTOWN CONDUIT

Ask your distributor for:
Pipe and Tubular Products - Sheets - Plates - Bars - Conduit - Coke Tin Plate - Electrolytic Tin Plate - Rods - Wire - Nails - Tie Plates and Spikes.

A DIGEST OF SUCCESSFUL SELLING IDEAS

THE SELLING PARADE (REGISTERED)

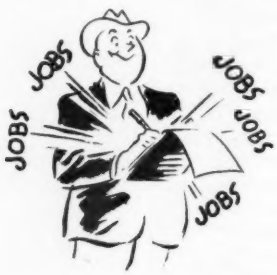
BY CHARLES B. ROTH

KEY TO PROSPERITY

There's a good deal of discussion now, and will be more, about how to guarantee enduring prosperity for America. All sorts of plans have been suggested, some of them ludicrous, some of them engaging, some ingenious, some stupid.

But the simplest plan is the best of all, because it is the only one under the sun that can ever work.

All America needs for enduring prosperity is enough sales to keep the factories busy and the payrolls rolling. There isn't any other way under the sun to bring prosperity to people except to bring sales, which make jobs.



This isn't a new idea or original. But for some reason it's been mightily overlooked in all this discussion of permanent prosperity.

Walter D. Fuller, the able head of Curtis Publishing Company, sees the picture, though. Recently he said: "Greater business activity is the antidote for unemployment and economic misery. The difference between depression and prosperity is simply the difference between mass fear and mass optimism. Our problem during the depression rose from underselling—our selling capacity and progress failed to keep pace with our capacity to produce."

All of which sums up to this: During the years just ahead no one in America has a more important job than the salesman. During the war it was the guy in overalls with grease on his hands who held the key to success. But now it's the man with the order blank and gray matter in his head who does . . . you . . . the salesman.

If you get discouraged at times because of the way things have been for you during the past months and may even be for you now, don't lose heart. The day of your greatest service is coming—and soon.

FITZ TAUGHT HIM

On of my good friends, a delightful old chap, now, unfortunately for me and for others who knew him, dead, was telling me a few months ago, when I commented upon his lifelong success record as a salesman, that he picked up what he called the "big idea" of his life in Chicago from Bob Fitzsimmons, the oldtime prize fighter.

Bob lived there during his later years and liked to talk about his career and give advice and my friend was working out of Chicago then and wasn't too happy or successful in his work. So he liked to loaf and listen to Bob talk.

"This one idea Bob gave me changed things pretty much for me," said my friend the salesman.

"What is the idea?"

"Well, one day I asked the old master—and he was that—the cardinal rule of his fighting career. He thought for a while, then screwed up that funny little mouth of his and said: "I always made it a point to hit as hard as I could at every blow."

"He explained that some fighters often delivered blows that weren't 'Sunday punches.' They just hit taps. But not Bob. He wanted every punch to be a knockout punch if it could."

"But how," I wanted to know, "does this apply to selling your line?"

"Don't you see?"

"No."

"Why, it's so simple."

"Not to me."

"Then listen. When I started applying the Fitzsimmons technique, I tried to make every call a pay call. No more 'courtesy calls,' 'goodwill interviews,' and things like that. I wanted results—every time. And pretty soon I was getting them. I didn't waste my energy any more than old Bob did, and, believe me, it has always paid."

WHAT DOES HE WANT?

"Considering that selling is so simple and easy, once you get the fundamental idea, it seems strange so many men make hard and unsuccessful work at it," said the chief salesman for the California firm on the diner.

"I know some salesmen who don't find it so easy," I observed.

"That only proves my point that they don't have the fundamental grasp of the problem of making sales," he said, unperturbed by my remark.

Then for twenty minutes he regaled me with as interesting—and convincing—a philosophy of doing your job as I ever heard. I'm not going to try to reproduce his words—but the highlights of his ideas are these:

All you need to do to make more sales is to find out more wants.

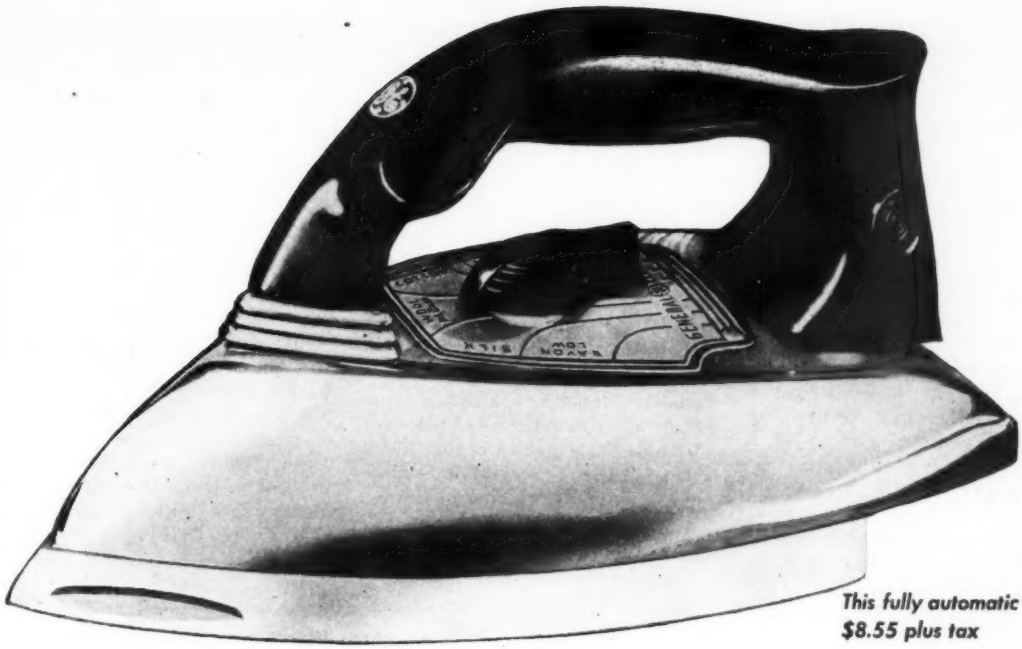
Ask yourself, What does he want?

Then answer the question and you can't lose.

Every living thing wants something, and the man or organization that can satisfy the wants can become rich.

Charles W. Mears, the famed Cleveland sales manager, says that we buy goods as a means to an end and that in selling we should not emphasize goods but the end.

The salesman who searches out the result the buyer wants to achieve and



This fully automatic model—
$8.55 plus tax

To the dealers with a future:

Keep your eye on G-E Irons

OF COURSE you aren't getting many of these brand new fully automatic G-E Irons yet. General Electric is manufacturing only a limited supply so as not to interfere with war production.

G-E advertisements in the Saturday Evening Post, American Weekly, and McCall's have been getting top reading with the startling news that G-E "Dial the Fabric" Irons are back . . . that they can save up to one third on ironing time!

Naturally the limited supply of irons that W.P.B. has allowed us to manufacture has been spread very thin to make sure that all retail channels get a fair share.

But until G-E Irons are again available in great quantity, take this opportunity to point out to *your* customers that G-E Irons have these work-saving features, and that they're worth waiting for, too!

—A Calrod heating unit—that heats up FAST
—button nooks that let you iron *under* buttons
—a 27" ironing surface that does more work every stroke
—a built-in thumb rest that relieves arm strain
—Lightweight construction cuts ironing fatigue.

Women are enthusiastic about G-E Irons. Picture the market you'll have when G-E Irons are back in full production! General Electric Co., Appliance and Merchandise Department, Bridgeport, Conn.

FOR VICTORY — General Electric is working night and day to back the attack. You can help, too, by buying and holding more War Bonds than before.

TUNE IN: *"The G-E House Party," every afternoon, Monday through Friday, 4 p. m., E. W. T., CBS. "The G-E All-Girl Orchestra," Sunday, 10 p. m., E. W. T., NBC. "The World Today," News, Monday through Friday, 6:45 p.m., E. W. T., CBS.*

Everything Electrical for Homes after Victory

GENERAL ELECTRIC

then shows how his goods will hasten the achievement is in harmony with the fundamental principles of his profession.

Such a salesman can sell anything—at any time.

Now, there isn't anything new in what this man said. You know that from reading my digest of his views. But it's surprising how few salesmen will take the trouble to master the fundamental of discovering first what the prospect wants.

Maybe the reason for that is that it takes so much downright hard thinking.

But it's worth while to think if you can get results.

BE IN TUNE

There's a corporation president in New York City who tells me he never saw a salesman fail unless he didn't learn the ABC's of personal contact.

"They are the all in all of salesmanship, personal contacts," says he.

What the president feels is that most salesmen do not put themselves in tune, as he says, with the man who has to be sold.

"They expect to sell a prospect while ignoring his personal likes and dislikes," said he. "That's folly."

His own practice as a salesman was to find out in advance what a man wanted, then give it to him. "And that just seemed commonsense to my way of thinking," said he.

One of his biggest prospects was a hard-boiled banker who didn't like smoking salesmen. In his office the banker smoked incessantly, but resented it if the salesman did. He wouldn't buy from a salesman who smoked, although most of them, seeing the prospect smoke, thought it was all right for them to smoke. Result: no sales.

But this man learned of the prospect's aversion to smokers, and refrained from lighting up, even when invited. He won the goodwill of an important prospect.

Another time he pleased an important buyer by refraining from shaking hands, having learned that handshaking in the eyes of this buyer was a major sin and a spreader of disease.

In all his contacts, all his life, he tried to keep himself in tune with his prospects. Every salesman should. Not too many do.

FM Wire Networks Planned by A. T. & T.

AN EMPHATIC "Yes" came from the American Telephone and Telegraph Company in answer to the question of whether the Bell System can provide program transmission channels which will meet the present and future needs of FM broadcasters with respect to high fidelity and freedom from noise and distortion.

The statement is contained in a 12-page brochure released by the company which points out that the Bell System already is furnishing studio-transmitter links to the majority of FM stations now in operation. These links transmit a frequency band of 15,000 cycles as specified by the Federal Communications Commission. It was stated that present broad band "carrier" telephone facilities can readily be adapted for 15,000-cycle program circuits, if desired, by adding special terminal equipment.

For many years, the announcement says, wide frequency bands have been transmitted over these carrier systems which make it possible to send many telephone and telegraph messages over a single pair of conductors. This network of wide-band channels, blanketing the entire country, already is capable of transmitting frequencies of 15,000 cycles or more.

In view of the prospects for a big increase in the number of FM stations in the immediate postwar period, A. T. & T. foresees the possibility that separate FM networks, with program sources of their own, may prove to be desirable. Whatever the broadcasting industry decides about grouping FM stations for separate networks and about the quality of channels desired, the Bell System will be able to furnish inter-city circuits of the kind needed including 15,000-cycle circuits if they are required, A. T. & T. says.

If other means than wire circuits should prove better or more economical for FM program transmission, the Bell System will use them, the statement said, citing as evidence of this the A. T. & T.'s projected microwave radio-relay system between New York and Boston. This trial installation is of a type which was under development by the Bell Telephone Laboratories before the war and is intended to test broad-band transmission by radio of various types of communications, including long distance telephone messages and television, as well as broadcast programs. It will apply to radio communication many of the techniques which have played an important part in the development of long distance telephony as well as adaptations of new techniques resulting from war developments. Directed radio beams will operate simultaneously in both directions and be relayed at stations situated about 30 miles apart.

The announcement reveals that the Bell System now serves standard radio broadcasters with more than 130,000 miles of program transmission circuits along telephone routes, inter-connecting radio stations regionally and from coast to coast.

"Why should I criticize his methods—he's the best repair man I've got!"

1/45
Sample from San Bernardino -
Bishop Line of
California Electric Power Co.
Erected in 1912 - Removed 1-28-44
from Span No. 1008 - 1009

"Good as New"

AFTER 30 YEARS SERVICE

A low flying bomber in California took down a span of A.C.S.R. line, which had been in continuous service for thirty years. Laboratory examination of this thirty year old cable resulted in the report "Good as new".

Dependability is an outstanding characteristic of Aluminum Cable Steel Reinforced. More than a million miles sold by Alcoa for rural and hi-lines are evidence of this fact.

Planning to build new lines or extend old ones? Alcoa's engineers will help you select A.C.S.R. having desired characteristics.

ALUMINUM COMPANY OF AMERICA,
2164 Gulf Bldg., Pittsburgh 19, Pa.

ALCOA A-C-S-R

NEWS of the INDUSTRY
National and Southern

PLANS FOR EXTENSION OF RURAL ELECTRIFICATION

A program calling for the expenditure of $790,000,000 by the nation's electric companies and their new customers in extending rural electrification in three years was announced by C. W. Kellogg, president of the Edison Electric Institute. The proposed operation is revealed in a preliminary report to the Institute by its Commercial Planning Committee which is now completing an exhaustive survey of the entire rural electrification question.

It is expected that a total of about a million new rural customers, 600,000 of them farms and 400,000 rural nonfarm homes will receive electric service from the electric companies within the three-year period. The electric companies will spend $290,000,000 to build the required lines, Mr. Kellogg said, and it is estimated that the new customers will spend about $500 each for wiring and other initial equipment, creating an aggregate of $790,000,000 to stimulate postwar employment. The work is to start as soon as war requirements permit.

The Institute's Planning Committee reports that the farm electrification job is about half done. Of the 5,200,000 farms of the nation with occupied dwellings at the end of 1944, more than 2,700,000 have electric service and 2,500,000 are without it. The principal areas where the rural population is incompletely served are the West North Central, West South Central, East Central and South Atlantic States. In the New England, Middle Atlantic and Pacific States the job of extending service is reported as nearing the finishing stage, averaging about 88 per cent in the Pacific States and 75 per cent in the other two areas.

Pointing out that in their extension of rural electrification since their pioneering efforts in 1906 the electric companies have kept in mind their social obligation to the farmers, as well as enhancing the economics of farm production, the report sets forth that the industry has constantly pursued a policy of liberalizing the terms and conditions for building lines in rural areas. Revenue guarantees have been reduced, guarantee periods shortened and lower rates fixed. Whereas the earlier construction programs applied to smaller groups of farms, it is now feasible to develop larger areas, because such procedure reduces construction costs and this in turn makes possible lower rates. The social gain of rural electrification is less drudgery for the farm wife and a more pleasant place in which to live.

The electric companies' contacts with farmers in making the survey, Mr. Kellogg said, developed widespread support of the extension program. Questionnaires filled out by farmers revealed that their first ten choices in the use of electricity were for water systems, refrigeration, including home freezer cabinets; brooders, water heaters, feed grinders, milking machines, elevators, barn ventilators, farm motors and cream separators.

"The electric companies are eager that the advantages of modern science be carried to the farmer," Mr. Kellogg said. "Electricity performs three specific functions for him: increases his income, lightens his labor, brightens his home. Unlike the city dweller he does not have the marvels of modern science at his finger tips. He can't get them by merely stepping around the corner. But he knows they exist,

SOUTHERNERS WIN SYLVANIA AWARD—Robert H. Bishop, general sales manager Lighting Division of Sylvania Electric Products, Inc., congratulates the four major prize winners in a recent fixture design competition sponsored by Sylvania for utility lighting people. Shown, left to right, are H. Grattan, Jr., of the Potomac Electric Power Company of Washington, D. C., third prize winner; L. B. Paist of the Northern States Power Company, Minneapolis, Minn., second prize winner; Robert H. Bishop; C. J. Berry of the Consolidated Gas Electric Light Company of Baltimore, Md., first prize winner; and Walter Kelley, Jr., of the Blackstone Valley Gas and Electric Company, Pawtucket, R. I., winner of the fourth prize.

Pointing the Way to

HIGHER DIELECTRIC STRENGTH ...LONGER LIFE!

The PRODUCT WITH A PEDIGREE
THE P. D. GEORGE CO.

PEDIGREE
INSULATING VARNISHES

Laboratory-tested . . . proven in service . . . first choice of the entire industry. Pedigree Varnishes are designed to do the job better . . . backed by a quarter-century of experience.

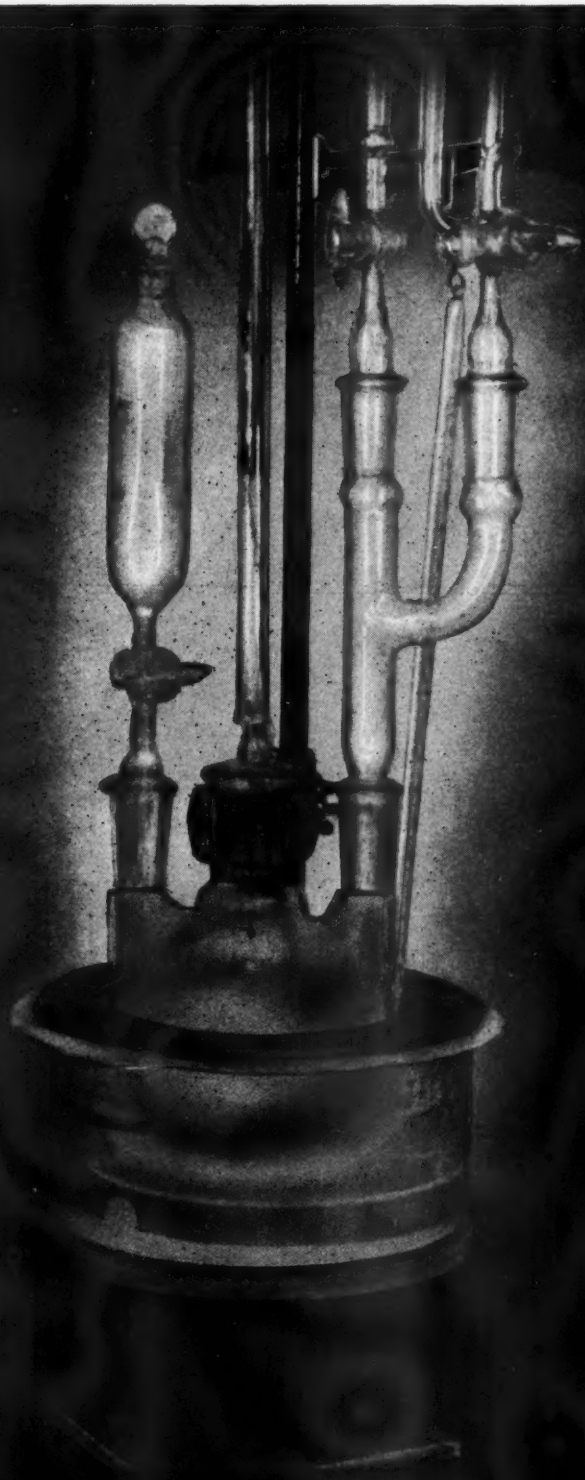
Distributed by

INSULATION MANUFACTURERS CORPORATION
INSULATION & WIRES INCORPORATED
TRI-STATE SUPPLY CORPORATION

Manufactured by

THE P. D. GEORGE COMPANY, ST. LOUIS, U. S. A.

TO RESIST



Electronic bombardment of high voltage cable oil under vacuum at 10,000 volts, a test as unique as it is purposeful, is but one indication of the searching investigations here undertaken.

VOLTAGE . . .

Here, wire and cable Research tests every component beyond the severest demands of service-in-the-field.

Looking far beyond today's needs, General Cable Research is prepared for the days when there will be commercial application of voltages beyond those of yesterday and today. Research endeavor is exploring in many directions, examining many products, evaluating the stability of many materials under the severest conceivable conditions. When the demand can be met, General Cable high voltage wires and cables will be available.

GENERAL CABLE CORPORATION

Manufacturers of Bare and Insulated Wires and Cables for Every Electrical Purpose

because he sees them in the movies, hears about them on the radio, reads about them in newspapers and magazines. Why shouldn't he be discontented if he doesn't have electric lights in his home and farm buildings, electric refrigeration, an electric laundry, electric pump and running water and other electric gadgets that make for a happier life? He of all people should have them, because he is cut off from so much the rest of us enjoy."

UNIVERSAL DESCRIBES POSTWAR APPLIANCES

Announcing their new Forward March to Market program, executives of Landers, Frary & Clark highlighted Universal's postwar plans for the manufacture of electrical appliances and housewares at a recent meeting of trade paper editors. Speaking before the nation's leading electrical, radio and hardware trade paper editors, B. C. Neece, vice-president in charge of sales, W. J. Russell, vice-president in charge of engineering, and W. J. Cashman, director of promotion and publicity, outlined Universal's future in manufacturing and marketing.

Forecasting appliance leadership for Universal distributors and dealers it was disclosed that $4,000,000 is being spent as part of Landers, Frary & Clark's postwar manufacturing and marketing program. $1,000,000 of this amount is being spent to engineer and redesign the complete line of Universal products which includes major and small appliances as well as non-electric housewares.

In addition the company is spending $3,000,000 for production improvement in new manufacturing equipment, tools and dies to assure better Universal products in the postwar period with finer performance and greater operating efficiency and economy. The important task of reconversion is proceeding just as fast as Universal's full wartime production schedules allow.

Disclosing for the first time the products which it is preparing to manufacture after the war for consumers, Universal executives stated that complete new lines will be available to dealers just as soon as the war allows.

Pointing out that automatic washers, dishwashers, electric blankets and pressure cookers will play an important part in tomorrow's better living, Universal executives said the company will present to its dealers complete lines of these appliances in addition to prewar lines only after careful market analysis, and thorough research to prove their ability to satisfy important consumer wants.

"What will my sponsor say?" Host Art Linkletter shouts as Comedian Kaye and Eve Arden try to get away with almost everything in sight as they depart from "The G-E House Party" studio at Columbia Broadcasting System.

The Universal postwar home cleaning group will include newly designed motor driven agitator type cleaners, tank cleaners, hand cleaners, floor polishers and Landers carpet sweepers. Each is being designed with an eye to the future engineered in the thorough Universal manner and will be manufactured to Universal "quality control" standards from start to finish.

In the home laundry field in addition to the automatic washer, newly designed wringer type washers will also be included along with floor and table type ironers to offer dealers a complete quality home laundry group under one famous brand. This will enable dealers to present their customers with a well known line of home laundry equipment meeting every need, reaching into each price level of consumer demand for greater volume.

Pioneer in electric range manufacturing, Universal which has contributed many firsts to the advancement of the art of electric cooking will present a new line of electric ranges and water heaters with many advanced features, new designs and better construction to add greater utility and convenience and to increase operating efficiency of cooking and water-heating in the home. The line of electric water heaters complimenting the electric range will increase dealers opportunities for dual sales that step up volume and profits according to sales executives of the company.

In small appliance field, Universal will include a completely redesigned line of electric irons, coffeemakers, toasters, mixers, sandwich grills and waffle irons which will make their postwar appearance along with a new automatic toaster, heating pads and portable stoves.

ACTION TAKEN TO CURB EXCESS REPAIR CHARGES

Preliminary action in a program designed to curb excessive charges to the public for repairs to household and other appliances and to automobiles and farm equipment was announced by the Office of Price Administration recently.

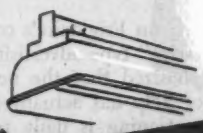
Authority has been granted OPA's nine regional offices, effective March 19, 1945, to require repair shops for these equipment groups that charge an hourly rate to customers to give detailed invoices in all cases and to keep detailed time records.

These two requirements will provide a check on time charged customers against time actually used on the repair jobs. Where an unreasonable discrepancy is found to exist between the two totals appropriate enforcement measures will be taken.

OPA said that complaints had been received over a considerable period that some repair shops, particularly those

PLAN FOR A BETTER, BIGGER LIGHTING BUSINESS WITH Mitchell

America's Most Complete Line



Look at the record. Prior to Pearl Harbor, MITCHELL creations boomed lighting sales and profits to a new peak. Then . . . conforming with wartime restrictions, MITCHELL led in originating new, exclusive designs that helped you meet industry's critical need. At every stage, MITCHELL ingenuity, engineering and resources assured you the *most complete* quality line. A *guaranteed* line. A line that enabled you to render a thorough lighting service to your customers. That's why MITCHELL became first in popularity with those who *buy* . . . as well as those who *sell!*

Play Safe with Your POST-WAR FUTURE . . .

Depend on MITCHELL for all this!

A complete line of lighting units—new ideas—advanced designs—best sellers—volume repeaters. The right kind of unit for every purpose: factories, offices, stores, schools, homes, public buildings. Easier to sell! Surer to satisfy!

- Industrial and Commercial Units
- Fluorescent Desk Lamps
- Strip Lighting
- Slimline and Circline Units
- I. E. S. Floor and Table Lamps
- Fluorescent Kitchen Units
- Bed Lamps
- Infra-Red and Ultra-Violet Health Lamps
- Lullaby and Lumitone Radio Lamps
- Polaroid Lamps
- Spotlight Equipment
- Store Window and Show Case Lighting
- Store Counter Units
- and Other Lighting Specialties

MITCHELL FLUORESCENT

Mitchell Manufacturing Company
2525 CLYBOURN AVENUE, CHICAGO 14, ILLINOIS
West Coast Factory and Sales Office:
1019 N. Madison Ave., Los Angeles 27, Cal.

for household appliance repairs, are charging exorbitant prices. Such shops repair electric irons, washing machines, refrigerators, vacuum cleaners, radios, etc.

Repair prices generally are "frozen" to their highest March 1942 levels at present, under the services regulation.

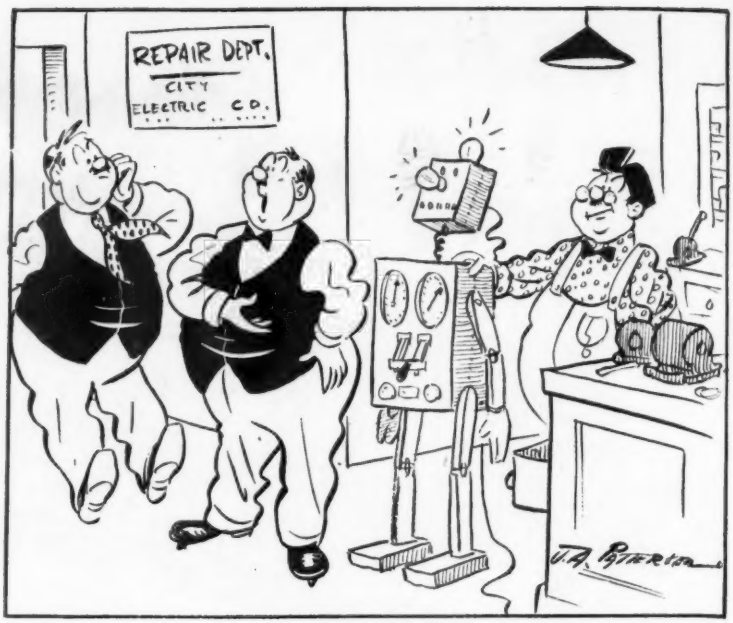
One of the chief methods used to obtain higher prices than allowed under the prevailing "freeze" ceilings has been to charge for more time than actually spent on the repairs, OPA said, and any action that might be taken by OPA field offices under the authority granted would be confined to establishments that use an hourly rate in pricing any of the services they supply.

The uniform pattern decided upon for use in any area action issued by OPA field offices sets forth these two requirements:

1. Detailed invoices must be supplied all customers, whether requested or not, and copies must be retained by the shop for inspection. The details required are listed and are for the purpose of showing actual hours charged customers and the basis for the time charged.

2. Shops must keep records showing the name of each employee doing repair work, the number of hours worked daily as well as during each pay period by each employee, and a separate statement showing how much of this work was performed on internal jobs for which no direct charge is made customers. Records also must be kept showing the amount of wages paid these employees in each pay period.

OPA said that where such records already are being kept, and are available for OPA inspection, new ones need not be prepared.



"Yardly, here, says he thinks he's got the answer to our help shortage situation!"

FRIGIDAIRE DIVISION ADVERTISING PROGRAM

Lee A. Clark, assistant general sales manager, Frigidaire Division, General Motors Corporation, Dayton, Ohio, has announced that Frigidaire's 1945 advertising program will have three major phases.

Since conservation of both food and equipment continues to be so vital to the war effort, the first important phase will be the continuation of the "service" type advertising that received such fine acceptance in 1943 and 1944. This advertising, which gave helpful suggestions on the care and use of refrigerators, won high readership and widespread commendation from government agencies, educators, home economists and the general public.

Another phase of the program provides for advertising that will emphasize how Frigidaire's portwar products will provide the advantages that consumers have indicated they want and expect in postwar electrical appliances.

Still another phase is directed to the postwar purchasers of Frigidaire's commercial refrigeration and air conditioning equipment. This advertising points out the many different businesses that use Frigidaire equipment and its many different applications, and features installations in places of business that are recognized as leaders in their fields.

In addition to this "consumer" advertising, Frigidaire is continuing campaigns in publications reaching special groups including home economists, teachers, architects and builders, owners of income property, etc., besides having a comprehensive campaign in a large number of trade papers reaching appliance dealers.

All of the advertising in this program is tied together by a common theme and by a distinctive signature block which has identified the company's advertising for some time. The theme being used is "Look to the Favorite, Look to Frigidaire" which is a wartime adaptation of Frigidaire's popular prewar slogan used in all Frigidaire advertising before Pearl Harbor — "Buy the Favorite, Buy Frigidaire."

In commenting on Frigidaire's continuance of "service" type advertising, Mr. Clark emphasized that the need for this kind of help has actually increased. Food rationing is daily presenting many new problems and all refrigerators also are a year older, thus needing even more care to make them last until they can be replaced.

Mr. Clark further stated that Frigidaire plans to continue providing Frigidaire dealers with free booklets for distribution to homemakers, giving useful tips on food storage and preparation of food as well as on how to take the best possible care of a refrigerator. Readers of Frigidaire's appliance advertising are urged to get these booklets from their nearest Frigidaire dealer.

In the commercial refrigeration field, too, Frigidaire will continue to provide dealers with a free booklet for distribution to users of commercial refrigeration and air conditioning equipment. This booklet, entitled "Conservation Tips" is filled with many helpful ideas on how stores, hospitals and others can use their equipment to best advantage and make it last longer.

Nearly 12 million of such booklets dealing with household refrigeration, commercial refrigeration and air conditioning have been distributed in the past two years and there is still a heavy demand for them, as well as for Frigidaire's popular film "How to Get the Most Out of Your Refrigerator."

DON'T FLY OFF THE HANDLE —

Safety Tip: **You know how tough it is to hang onto a hammer when the handle gets smooth and slippery. For a firm, sure grip, just wrap a few turns of Security Friction Tape on your hammer. Then notice how much easier it is on your hand—on your temper. You'll find, too, that Security Tape packs a lot of safety on many other jobs.**

Play Safe—Use Security

US

SERVING THROUGH SCIENCE

Listen to "Science Looks Forward"—new series of talks by the great scientists of America—on the Philharmonic-Symphony program. CBS network, Sunday afternoons, 3:00 to 4:30 E.W.T.

UNITED STATES RUBBER COMPANY

1230 SIXTH AVENUE • ROCKEFELLER CENTER • NEW YORK 20, N. Y.

APEX NAMES TWO NEW SOUTHERN DISTRIBUTORS

A. C. Scott, vice-president in charge of sales of the Apex Electrical Manufacturing Company, Cleveland, Ohio, has announced that two new distributors have been signed to handle the complete Apex line of washing machines, ironers, and vacuum cleaners. These two distributors are Georgia Appliance Company, of Atlanta, Ga., and the Cate-McLaurin Company, of Columbia, S. C.

The Georgia Appliance Company will control the distribution of Apex products in the state of Georgia. They will add Apex appliances to their present line, which includes radios, refrigerators, electric ranges, water heaters and kitchen equipment.

The Georgia Appliance Company is under the active management of Herndon Thomas, who has been connected with the electrical appliance business in the state of Georgia for the last 17 years. The company is owned jointly by P. C. Gilham, Jr., and Herndon Thomas.

The Cate-McLaurin Company will distribute Apex washers, ironers and vacuum cleaners in the state of South Carolina. The company began in 1932 and definitely established themselves in the state of South Carolina as distributors of refrigerators, automobile supplies, major electrical appliances and air conditioning units. The company's activities are under the guidance of W. L. Krell.

Mr. Scott also stated that with the addition of these two major distributors in the South, the ever growing distributor organization of the Apex Company will be definitely strengthened in this territory. With the resumption of domestic production, these distributors will handle electric and gas-powered washing machines, portable and cabinet type ironers, and a full line of vacuum cleaners, plus the new completely automatic washing machine which was recently announced by Apex.

GRAYBAR TO DISTRIBUTE BENDIX RADIOS IN ALA.

Appointment of Graybar Electric Company as distributor for the forthcoming line of Bendix AM and FM radios and radio-phonograph combinations in Alabama, western Florida, and eastern Tennessee, was announced recently by Leonard C. Truesdell, general sales manager for home radio, Bendix Radio division of Bendix Aviation Corporation.

The Graybar Company will maintain distribution headquarters in Chattanooga and Birmingham.

J. A. Taylor, manager of the Birmingham house headquarters, has been associated with the Graybar Company for twenty-three years. He served in field sales organization prior to his appointment as manager in 1943.

C. W. Ledford, manager of the Chattanooga house headquarters, recently joined Graybar after a wide range of merchandising experience with Firestone Tire and Rubber Company, Tennessee Power Company and Detroit Good Housekeeping Stores.

Directing merchandising operations in the territory will be H. E. Giles, Chattanooga, district merchandise manager, and E. G. Walker, Birmingham.

QUICK-FREEZE PLANT FOR BROWNSVILLE, TEXAS

I. N. Hargis, electrical contractor of Brownsville, Texas, has the contract for installation of equipment and wiring for a new quick-freeze plant in Brownsville to be known as Pan-American Freezers, Inc. The plant is being built by Carl Reicker and T. H. Floyd and work was to have begun in March.

According to the sponsors, this plant, the first of its kind to be built in the lush Rio Grande Valley, will preserve almost the entire vitamin content of fruit by freezing it within three hours after it is picked.

FURTHER RESTRICTIONS ON ELECTRICAL EXTENSIONS

The Office of War Utilities of the War Production Board has issued an amendment to Utilities Order U-1-f imposing further restrictions on the construction of new electrical service extensions that can be made without specific approval from Washington, WPB has announced. The new restrictions are necessary because of increasing shortages in both manpower and materials, according to Edward Falck, OWU director.

Most important of the new restrictions is one imposing a length limit of 5,000 feet on extensions to several classes of industrial and commercial consumers specified in the order. An exception to this 5,000-foot limit is in the case of extensions to operate electric motors for oil well drilling or pumping. In such cases, up to $10,000 worth of materials may be used without regard to length of line.

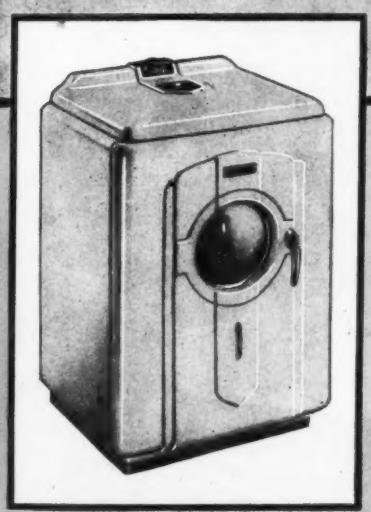
Extensions for services to dwellings used for seasonal purposes, such as summer camps and cottages, are limited to 250 feet. A further restriction in such cases prohibits the use of additional transformers.

Another new provision requires certificates of necessity on the ground of public safety by appropriate public authority before a utility may install new street lights. No new street lighting fixtures may be closer together than 250 feet.

Extensions of service that were per-

A. D. Hammond (center), southern district manager, Graybar Electric Company, takes over distributorship for Bendix home radios in the territory of Alabama, western Florida, and eastern Tennessee. Left to right are Royal Vilas, southeastern district manager, Bendix Radio division of Bendix Aviation Corporation; H. E. Giles, district merchandise manager, Graybar Electric Company, Atlanta; Jack Dalton, special sales representative, Bendix Radio. Seated at the right is C. S. Powell, vice-president and manager, communications and merchandise departments, Graybar Electric Company.

BENDIX
automatic
Home Laundry
BENDIX DEALER
It's the only way Joe can get to his office, since he asked 'em to register for a new BENDIX!



Poor Joe!—he has so many advance orders for the new Bendix Automatic Home Laundry he thinks he's dreaming! But it's that way all over. Bendix dealers are the most popular men in town—with women everywhere sweetly crooning, "All I Want Is A Bendix!" And the best is yet to come! As soon as those gleaming new Bendix machines are released, Joe's orders become *cash*, and his bank account goes up and up!

Women want the Bendix for many reasons. For washday ease, and freedom from drudgery. For smartness. For better cleansing. For more leisure. Because they know there is only *one* Bendix that gives them everything they are looking for in home laundrys.

We've told them all this in National Ads. And we're doing a bigger job of advertising this year than ever before. There's National Radio, too. And Electric Signs, Store Displays and countless Dealer Materials. Frankly, though, the American women are doing a swell job for the Bendix dealer, telling one another, at bridge parties and over the backyard fence, That's advertising that means truly *satisfied* customers!

BENDIX automatic Home Laundry

Bendix Home Appliances, Inc., South Bend, Indiana...Pioneers and Perfectors of the Automatic "Washer"

WATCHFUL EYES *This ideally arranged Mica Inspection Department is equipped with most modern facilities so that accuracy beyond a doubt is at all times possible. Each inspector is highly trained in this important job of inspection. Mica Capacitors play a vital part in the correct functioning of many types of equipment. Thus, expert inspection must be maintained constantly.*

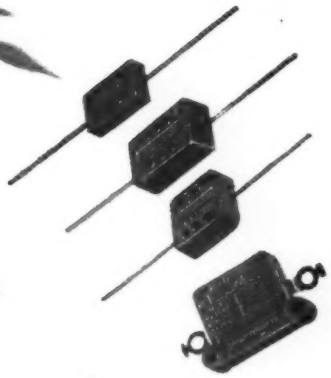
HOW EXCELLENCE

• Constant vigilance and attention to even the minutest manufacturing detail are part of Sangamo's contribution in designing and manufacturing a complete line of mica capacitors which merit every confidence of the most critical user of capacitors.

SANGAMO ELECTRIC

ESTABLISHED 1898 • • • MICA CAPACITORS • • •

IS BUILT INTO Sangamo MICA CAPACITORS



Mica Inspection

Long trouble-free life of mica capacitors is entirely dependent upon the quality of the mica dielectric used in the capacitor. Careful splitting, precision gauging, accurate sorting, and clean punching of mica sheets, contribute to long trouble-free life of finished capacitors. Every piece of mica must be carefully inspected before it is assembled into a capacitor unit. Such inspection is necessary to assure freedom from all flaws such as fractures, cracks, air bubbles, pinholes, or the inclusion of metallic or other extraneous material.

The slightest fracture at the edge of a mica film will tend to run when the capacitor is moulded and will ultimately result in dielectric breakdown of the entire unit. Ultimate failure of the dielectric may also be expected when air bubbles are present. The inclusion of impurities in mica result in higher losses and, in many cases, in ultimate failure of the capacitor.

The keen eyes of alert, well trained operators are quick to detect the slightest imperfections of the punched mica sheets, so that only mica films free from flaws are passed to be used in the final assembly operations.

★ ★ ARMY E NAVY ★ ★

COMPANY SPRINGFIELD ILLINOIS

. . . WATT HOUR METERS . . . TIME SWITCHES . . .

mitted by the order prior to the amendment and are not now permitted under the new restrictions may be completed if more than 20 per cent of the poles required for the entire extension have already been installed. If the effect of the amendment is to stop construction of an extension to a war plant or to facilities essential to civilian health and safety, utilities may obtain permission to proceed by filing a telegraphic appeal to OWU.

TWO DIVISIONS CREATED AT WESTINGHOUSE ELEV. CO.

Ellis L. Spray, vice-president and general manager of the Westinghouse Electric Elevator Company, has announced the creation of two separate divisions to carry on the work of the company, the Air Conditioning and the Elevator Divisions.

Ross Rathbun, formerly manager of air conditioning, has been appointed manager of the expanded Air Conditioning Division, which now includes the Precipitron; and Walter G. White, formerly sales manager, has been named manager of the Elevator Division. George F. Begoon, who for several years has directed commercial development of the Precipitron, has been named manager of the Precipitron Department of the Air Conditioning Division.

Pointing out that the Precipitron, an electronic device which removes 95 per cent of dirt particles from the air, and air conditioning are in increasing demand as a combined unit, Mr. Spray termed the "wedding of these two branches of our business a natural one."

"This is especially true now," he said, "because of the great demand by many war plants for air that has not only been conditioned as to temperature and humidity, but also thoroughly cleaned. For example, binocular, bombsight and other optical plants which must have especially dirt-free air have found the Precipitron invaluable, since it removes dirt and dust particles down to 1/250,000th of an inch."

"Yeah, I'm 4-F—what about it?"

FARADAY DIVISION MOVES TO BOSTON

The Stanley & Patterson Division of the Faraday Electric Corporation has moved to 434 Newbury Street, Boston 15, Massachusetts.

The machinery and personnel of the Holtzer-Cabot Signal Division as well as equipment and personnel from the Faraday plant at Adrian, Michigan, will be combined at the new address.

Paul E. Freiwald is to be the sales manager of this division and George Rick will be in charge of manufacturing.

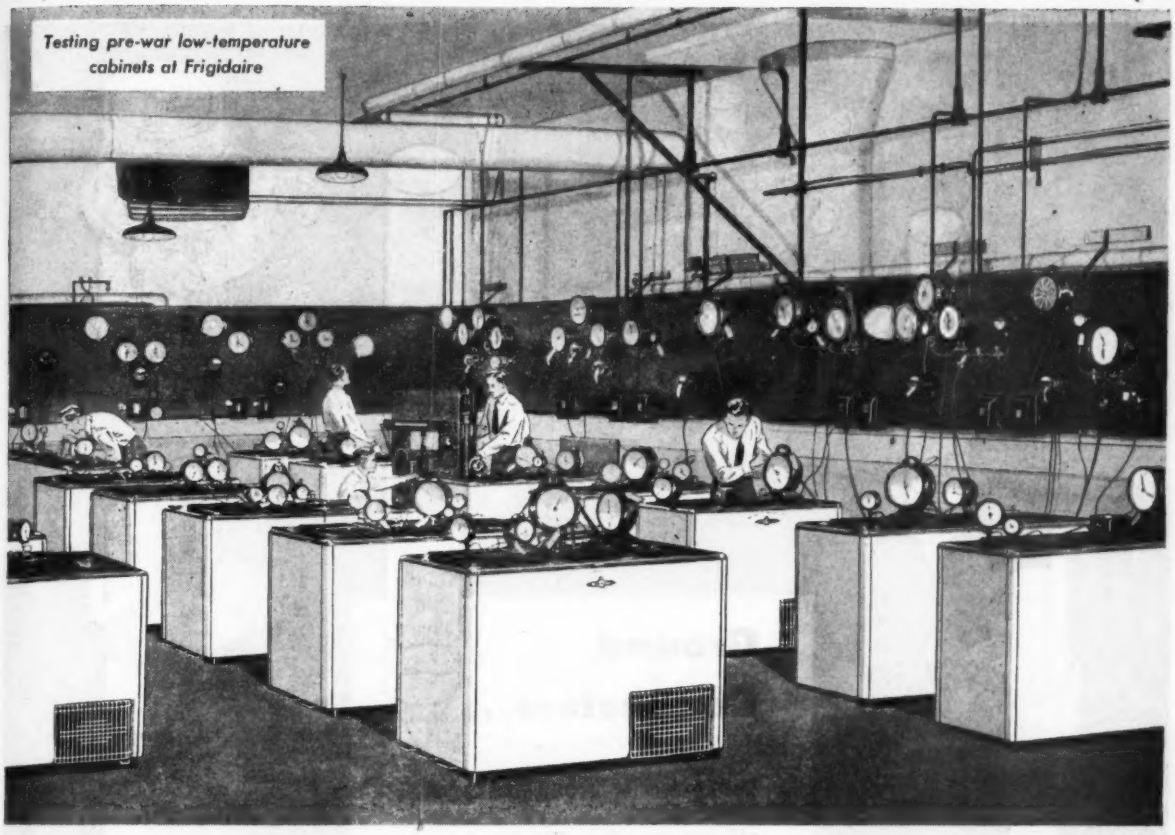
RADIO TUBE SUPPLY STILL CRITICAL

In view of the continued shortage of radio receiving tubes, the War Production Board is making every effort to get all existing tubes into service and obtain the maximum volume of new tube production, WPB Radio and Radar Division officials told members of the Electronics Distributor Industry Advisory Committee at a recent meeting.

To this end, WPB with the cooperation of other bureaus of the Government, is seeing to it that information as to surplus radio receiving tubes is made available to the manufacturers and distributors, so that any actual surplus supplies may reach dealers and service men for civilian supply.

There is no immediate prospect, however, it was pointed out, that the civilian tube supply situation will im-

Extensive modernization plans have been completed at George Koeln & Company, manufacturers representative at Atlanta, Ga., operated by Mr. and Mrs. George Koeln. The three-story building at 144 Walton Street includes floor space of 7,000 sq. ft. and is completely equipped with elevator service. Territory covered includes Alabama, Florida, Georgia, North Carolina, South Carolina, and Tennessee.



Testing pre-war low-temperature cabinets at Frigidaire

How does Frigidaire Experience assure still better HOME FREEZERS for Frigidaire Dealers to sell?

TOMORROW'S HOME FREEZERS will reflect the *experience* of the companies that make them. Experience in manufacturing. Experience in research. That's why the Frigidaire Dealer looks forward with confidence to selling the *new* Frigidaire home freezers. For he knows that Frigidaire possesses unmatched experience in the low-temperature field . . .

Experience in Manufacturing. Frigidaire pioneered in engineering low-temperature cabinets . . . for nearly a quarter-century has been manufacturing this type of cabinet, the direct forerunner of the modern home freezer. During this time more than 350,000 such cabinets have been built and sold by Frigidaire—more than by any other manufacturer. And this is in addition to all of Frigidaire's closely related experience in manufacturing equipment for locker plants and general commercial use—and in manufacturing household refrigerators!

Experience in Research. Customer research to determine what prospective users want and expect in home freezers. Frozen food research to check these requirements and to develop maximum "usability" for home freezers. Engineering research to apply the scientific skills of Frigidaire *and* General Motors to designing the finest home freezers possible.

What will the new Frigidaire Home Freezers be like? The answers to that question will be decided in test rooms like the one pictured here. But of one thing you may be sure: Frigidaire experience, allied with Frigidaire facilities, will produce the kind of home freezers the public wants and needs . . . at prices that will mean volume sales for Frigidaire Dealers!

BUY AND KEEP MORE WAR BONDS!

Look to Frigidaire for Leadership through . . . EXPERIENCE

For Victory
War Production

FRIGIDAIRE
Division of
GENERAL MOTORS
DAYTON 1, OHIO • LEASIDE 12, ONTARIO

Peacetime builders of
REFRIGERATORS • RANGES • WATER HEATERS
HOME FREEZERS • ICE CREAM CABINETS
COMMERCIAL REFRIGERATION • AIR CONDITIONERS
BEVERAGE, MILK, AND WATER COOLERS

Ground Connectors...

Good grounding is essential to safe, efficient operation. With Burndy connectors you're always sure of your ground. Catalog on request. Burndy Engineering Company, Inc., 107V Bruckner Blvd., New York 54, N. Y.

Engineering for CONNECTORS

Burndy

IN CANADA: Canadian Line Materials, Limited, Toronto

prove materially. Rather, it is expected to remain about the same as in late 1944, approximately one and a half million tubes a month.

Regarding the availability of tubes and electronic equipment following the end of the European War, it was said that although certain military requirements may fall off, much of the electronic equipment used in Europe would either have to be tropicalized—made moisture and fungus proof—or replaced by new equipment for use in the Pacific theater. In either event, it would appear a continued burden will remain upon the manufacturers of military equipment.

WPB AMENDS CMP-9A CONTROLLING COPPER

Because of the critical need of the armed forces for a sharply-increased supply of field wire, the War Production Board has announced the suspension of Controlled Materials Plan Regulation No. 9 and amendment of CMP-9A. CMP-9 is the regulation that permitted retail stores to purchase copper wire for sale to civilians; and CMP-9A provides copper wire for use by civilian repair shops. Industrial procurement under CMP-9A is not affected.

CMP-9 is not revoked, but will be kept on the books in a state of suspension through June 30. If the copper wire situation improves sufficiently to meet the tremendous military demands with enough left over to provide for civilian sales as well, the regulation can be put back into operation quickly.

It is believed by the Office of Civilian Requirements the stocks of copper wire now in the hands of retailers will meet essential civilian needs between now and the middle of the year if dealers initiate self-rationing to their customers.

In accordance with the suspension provisions affecting CMP-9, retailers must immediately cancel all outstanding orders for copper wire on which they used the allotment symbol V-3. Producers and warehouses are also prohibited from filling V-3 copper orders if they have reason to believe the order was placed by a retailer pursuant to CMP-9.

Suspension of the regulation does not affect the sales of copper wire under Direction 21 to CMP-1, which provides for the farmers' copper wire allotment certificate.

CMP-9A provisions are sharply curtailed to further conserve the use of copper wire.

The limits on the repairman's purchase of copper wire under CMP-9A are reduced to $75 worth of wire per calendar quarter or 10 per cent of what the repairman used in 1941, whichever is higher. The former limits under CMP-9A were $150 or one-eighth of his 1941 production, whichever was higher. However, the amendment provides that the alternative choice of the 10 per cent base will not be allowed unless the repairman produces definite records.

In addition to limiting the copper wire that repair shops may obtain, the amendment prohibits use of materials for certain kinds of work. Failure to comply would make the repair shop liable to withdrawal of all WPB priorities assistance in obtaining materials. The prohibited uses are:

1. No new connecting or attachment cord may be supplied for a vacuum cleaner, washer, refrigerator, iron, radio, lamp, fixture, or any other electrical appliance or piece of equipment where it is possible, by patching or by the use of insulating tape, to put the old cord in condition for reasonably good service for the remainder of 1945.

2. No wire may be used to assemble or make up a new connecting or extension cord, for resale or gift purposes, or to accompany or be used with any appliance or piece of equipment being repaired or sold. Other provisions are made by the War Production Board for the manufacture of appliance and extension cords.

3. No new wiring of any kind may be installed in any building except to the extent permitted by Direction 2 to this regulation. If wiring is in fact damaged, it may be replaced, but only the minimum amount necessary to make the repair may be used.

4. The conversion of a vase or other object into a lamp is the manufacture of a lamp and not repair. The use of copper wire in such manufacturing is prohibited by Conservation Order M-8-c.

Carrollton Appliance Co., New Orleans, filled in its stock with toys last Christmas and renewed outside paint and signs, presenting a fresh and receptive appearance for postwar appliance customers, who are watching their favorite stores.

BELMONT & RAYTHEON TO COMBINE FORCES

That tentative negotiations are under way to combine forces of Raytheon Manufacuring Company and Belmont Radio Corporation was announced by Laurence K. Marshall, president of Raytheon, and Parnell Billings, president of Belmont.

The two companies have a total annual volume in excess of $200,000,000. Belmont, one of the country's largest producers of private-brand

radio receivers, sold through mail order houses, chain stores and other retail outlets, has its plant in Chicago. Raytheon, a leading manufacturer of electronic tubes and devices, operates plants in Newton and Waltham, Massachusetts.

The contemplated move to unite the firms would combine their large research departments for the development of both radios and tubes. In addition, it would add Belmont's sales organization to Raytheon's distribution facilities.

At the present time, both companies are engaged in military production. The combination paves the way for postwar expansion in joint production facilities for home sets and tubes, as well as in microwave communication, frequency modulation, industrial electronics, and television.

NEW OFFICERS HEAD ELECTRICAL GROUPS

New officers have been elected for 1945 for the Electrical Manufacturers Representatives Association, Inc., of Baltimore, Md., with F. A. Leser heading the group as president. Other officers elected include Frank C. Butts, vice-president, and J. Vernon Letmate, treasurer. R. J. Montgomery continues as secretary with headquarters at 401 National Marine Bank Bldg.

* * *

L. T. Allen, Allen Electric Company, Tulsa, was elected president of the Oklahoma State Chapter, National Electrical Contractors Association, at the annual meeting held recently in Oklahoma City. Other officers elected include: vice-president, George A. Gaddis, Gaddis Electric Company, Oklahoma City; treasurer, H. J. Reeves, McEldowney & Son, Oklahoma City. In addition to the above officers, the new executive committee includes: Marvin Osborne, Osborne Electric Company, Oklahoma City; Dale Watt, Watt Plumbing, Air Conditioning & Electric Co., Tulsa; Guy Emerson, Guy Emerson Company, Tulsa; and Harold Walker, Walker Electric Co., Enid. Bill Damon continues as secretary-manager of the State Chapter with headquarters in Oklahoma City.

* * *

New Officers have been elected for 1945 for the Southeastern Chapter of the National Industrial Service Association, an association of electrical motor repair shops for cooperative self-improvement. The new officers are: president, T. T. Thomas, Electrical Equipment Co., Richmond, Va.; vice-president, B. A. Siddall, Sumter Machinery Co., Sumter, S. C.; and secretary-treasurer, J. G. Hammond, Hammond Electric Co., Rocky Mount, N. C.

* * *

DALLAS CHAPTER NECA SEMI-ANNUAL ELECTION

In a recent semi-annual election, members of the Dallas chapter of the National Electrical Contractors Association re-elected the president, vice-president, two members of the board and the manager.

Officers and directors are: Jim McClure, McClure Electric Co., president; Eddie Roos, Roos Electric Co., vice-president; T. C. Sands, Sands Electric Co., and Henry Gable, Gable Electric Co., re-elected to the board with Julius Dry, Superior Electric Co., the newly chosen member. Officers also serve on the board and W. C. (Pete) Bryant, re-elected manager, serves as secretary of the board.

C. M. Cockrell, Cockrell Electric Co., is treasurer, and Bob Fishl, Albright Electric Co., was named to the national board of governors.

BUGG RE-ELECTED BY RMA

E. W. Bugg, vice-president of Dabney & Bugg, Inc., electrical appliance dealers, Richmond, Va., has been re-elected president of the Retail Merchants Association of Richmond for the coming year.

GENERAL CABLE CO. WINS FOURTH AWARD

The men and women of General Cable Corporation's Rome plant have won the coveted Army-Navy "E" award for excellence in production for the fourth time. Under Secretary of War, Robert P. Patterson, in his letter announcing the award, congratulates the employees on their war work.

With the receipt of the award for the fourth time, the Rome plant joins the select group of plants that have kept production at top capacity for two long years under wartime pressure. The award also recognizes the outstanding technical contributions which the plant has made to the methods of manufacturing the war products which are flowing from its machines.

Commenting on the award, D. R. G. Palmer, president of General Cable Corporation, stressed the fact that employees and management are aware of the current critical situation in Europe and intend that output will not only be held at its present high level, but there shall be no shortage.

WAR DEVELOPMENTS OF GENERAL ELECTRIC

Production of war weapons and equipment at an ever increasing tempo continues to be the No. 1 mission of the General Electric Company, it was emphasized in a recent report to stockholders by Charles E. Wilson, president.

In making his appeal for greater efforts in war work, Mr. Wilson gave information on the accomplishments in this field by the 170,000 employees in General Electric. Mr. Wilson told in his panoramic but terse account, which supplemented the usual financial report and dividend checks, how the talents and production forces of the General Electric employees had been concentrated on war work since even before the Japanese attack on Pearl Harbor, both in production and creation of new and more effective weapons.

Some of the war developments and production achievements of General Electric mentioned by Mr. Wilson were:

1. Jet Propulsion: The G-E Turbo Jet engine, which drives propellerless planes at tremendous speed.

2. B-29 Central Gunnery System: 20,000 General Electric employees now are making these central electrical gunnery control systems which protect Superfortresses on unescorted bombing missions over the Japanese homeland.

3. Rocket Launchers: General Electric made the first bazookas, or rocket launchers, for use by the Army as anti-tank weapons. Other rocket launchers, including folding ones for paratroopers and those used on AAF fighting planes, now also are made by General Electric.

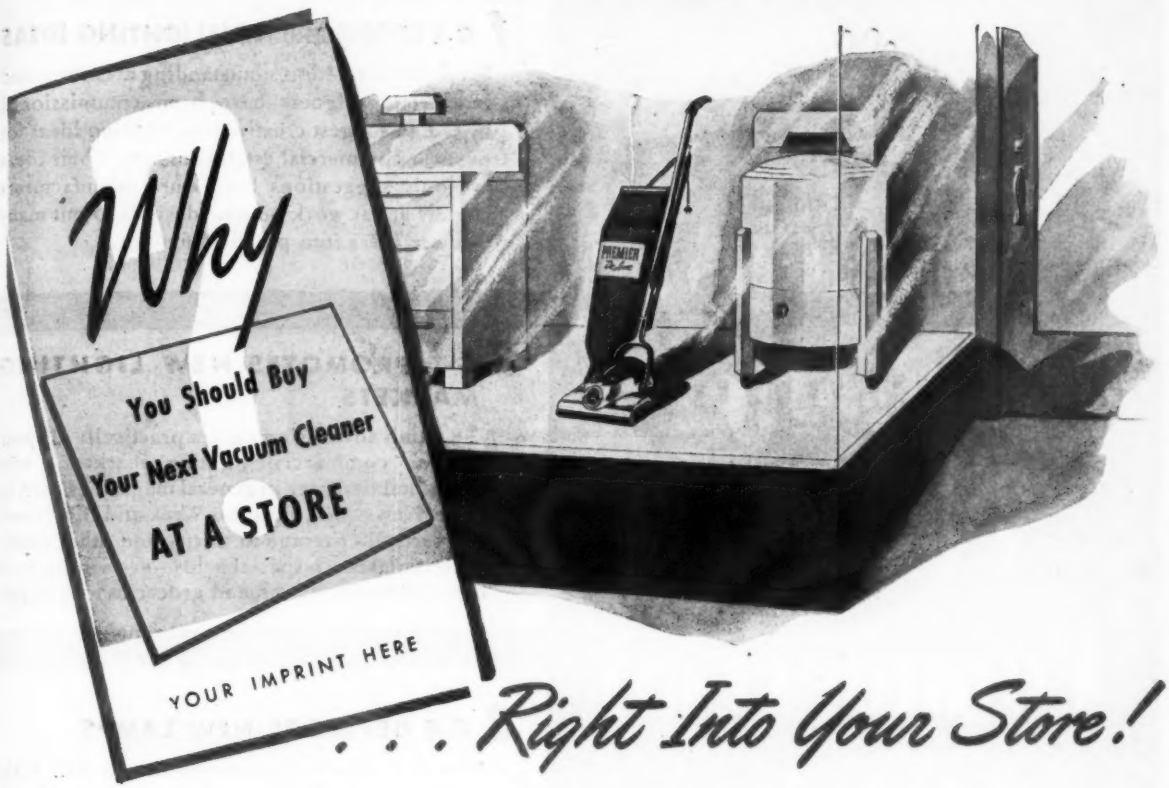
4. X-Rays: Portable X-ray units made by the G. E. X-Ray Corporation are used by medical units through combat areas. Also, X-rays as high-powered as 1,000,000 volts are used to speed work in shipyards and war plants. They detect flaws in thick metal. A 2,000,000-volt machine is in operation.

5. Destroyer Escorts: Speedy production of propulsion equipment for escort craft was mandatory to defeat the German submarine menace. General Electric produced the necessary number of turbine-electric systems ahead of schedule.

6. Power for Navy: More than 50 per cent of the Navy's warships are propelled by G-E built turbines.

7. Turbosuperchargers: Turbosuperchargers make it possible for airplane engines to function efficiently at high altitude. Without them, a General Electric invention and development,

PUTTING THE PUBLIC RIGHT...

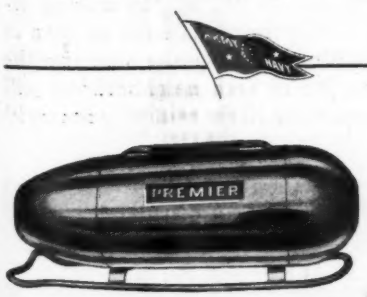


. . . Right Into Your Store!

This Premier consumer booklet is another essential move in a campaign to change the vacuum cleaner buying habits of American women. It tells the story of the expensive house-to-house high-pressure selling methods in contrast with the economical method of selling through dealers in-the-store—just as all other electrical appliances are sold.

The booklet's vital and forthright message to consumers is this: a top quality vacuum cleaner bought from a salesman in-the-home will cost from $10 to $20 more than the same quality cleaner would cost when bought in your store. Such a message, we believe, will be particularly effective in putting the public right about the wise way to buy vacuum cleaners—right in your store.

The booklet is being offered to consumers in Premier's full-page color advertisement (which tells the same story) in the April issue of the Ladies' Home Journal, and will also be offered in subsequent advertisements in Good Housekeeping and The Saturday Evening Post. If you have not already received copies of the booklet from your distributor, or if you wish additional copies, send your request directly to your distributor or write Electric Vacuum Cleaner Co., Inc., and every effort will be made to supply you.



PREMIER

"All That the Name Implies"

ELECTRIC VACUUM CLEANER CO., INC. • CLEVELAND 10, OHIO

4 steps to Better Postwar Commercial Lighting

The prior claims of war production are a necessary limitation on all activities looking to the development of postwar markets. Within those limitations, which all of us recognize, the lighting industry has an obligation to prepare now for its share in the task of stimulating postwar business activity and providing postwar jobs. Commercial lighting will be the spark—hence the program outlined on these pages.

"To make G-E Lamps STAY BRIGHTER LONGER" The constant aim of G-E Lamp Research

1 G-E SPONSORS NEW LIGHTING IDEAS

Several of the nation's outstanding architects and industrial designers have been commissioned by G-E to suggest creative new lighting ideas for postwar commercial establishments. Their ideas are only suggestions but fixture manufacturers already are at work on new designs to put many of these ideas into practical fixtures.

2 G-E PROMOTES NEW LIGHTING MARKETS

G-E Lamp advertising covers practically all your postwar commercial lighting markets — with horizontal coverage in general magazines such as Time, Newsweek, Business Week and U. S. News, and vertical coverage in thirty-nine other publications that reach special fields—everything from banks to beauty shops, and groceries to garages.

3 G-E DEVELOPS NEW LAMPS

New G-E Mazda Fluorescent Lamps will make higher standards of store lighting easier to sell. More than ever before the lighting of the postwar store will say "Come in and Buy!" New G-E Fluorescent Lamps will include both slimmer, longer tubes and circular shapes.

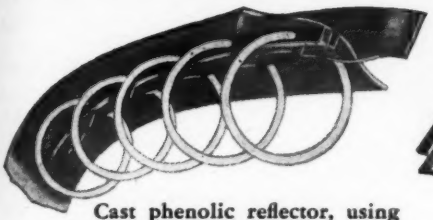
4 G-E SUGGESTS YOU TRY THE NEST EGG PLAN

What the merchant sees in other stores influences his own relighting plans. That fact is the basis of General Electric's "nest egg" plan. By selling and planning a model lighting installation in each shopping area NOW, and by making arrangements for delivery of materials as soon as they are available, you can make sure that the *first* relighting job in each neighborhood will set a high standard for all the rest. Why not try it?

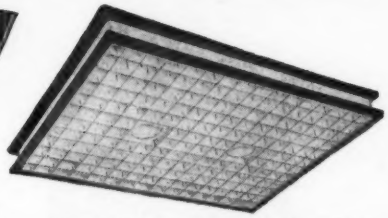
BUY WAR BONDS AND HOLD THEM

G-E MAZDA LAMPS

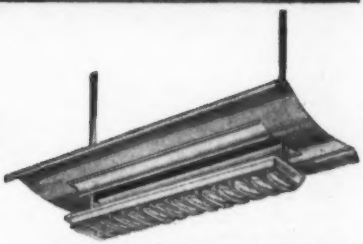
Hear the G-E radio program "The G-E All-Girl Orchestra", Sunday 10:00 p.m.



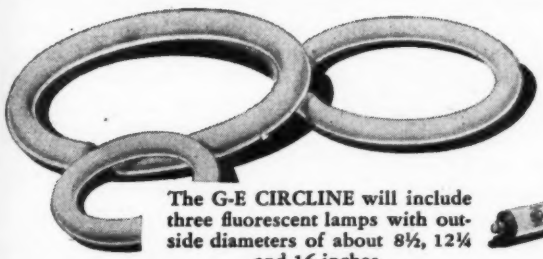
Cast phenolic reflector, using circular fluorescent lamps, designed to direct store traffic.



Fluorescent unit with adjustable spotlights for highlighting displays.



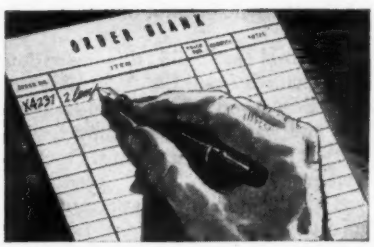
Four-lamp fluorescent luminaire suggested for grocery store.



The G-E CIRCLINE will include three fluorescent lamps with outside diameters of about 8½, 12¼ and 16 inches.

The G-E SLIMLINE—four new slimmer fluorescent lamps up to eight feet in length.

FIRST: Sell the nest eggs NOW. Show the storeowner the advantages of being *first* in his neighborhood to relight and explain how you will help him. Bring a contractor and supplier in on the job.



SECOND: Make a complete layout, covering general, showcase, display and decorative lighting, both incandescent and fluorescent. Order all the materials NOW, for delivery when conditions permit.

THIRD: Expedite the installations. Your nest eggs will get off to a head start—and you'll have in each shopping area a practical example of first-rate lighting that will set the pace for all. Try it!

GENERAL ELECTRIC

high altitude aerial operations such as the AAF daylight bombing missions against German targets would have been impossible.

8. Instruments: 280 different models of aircraft instruments are manufactured by General Electric.

9. Motors and Generators: G-E motors and generators by the tens of thousands serve the armed forces throughout the world. One of the motors is but 1⅜ inches in diameter. Another is 18,000 horsepower, and there is almost everything the mind can imagine in between. Generators on a single B-29 make enough electricity to supply 10 modern all-electric homes. A vast amount of electric G-E equipment also is in operation on U. S. submarines.

10. Communications: G-E radio and receiving apparatus is in service on fighting fronts everywhere, in the air, on land, and on the sea.

Besides these a vast number of other products are made for the armed forces by General Electric, including an entire field of plastic products, a smoke generator, hundreds of types of lamps, searchlights, gun control equipment, and electronic devices. In fact, one of the outstanding operations of G-E engineers in war work has been in the field of radar, but nothing in detail can be told about that now.

STROMBERG-CARLSON NAMES DISTRIBUTORS

Clifford J. Hunt, manager of radio sales for the Stromberg-Carlson Company, Rochester, N. Y., announced recently that the company had appointed distributors for the postwar radio, FM and television lines to cover two of Tennessee's key trading areas.

The Better Home Products, Inc., which has been appointed the fifty-one-year-old Rochester firm's distributor for the Nashville trading area, is headed by William M. Fike, general manager. The firm will feature along

C. C. Bower

Wm. M. Fike

with Stromberg-Carlson receivers a high quality line of "famous brand" home appliances, Mr. Fike said.

The Tri-State Supply Company, of Chattanooga, will represent Stromberg-Carlson in the sixty-mile trading area of which Chattanooga is the hub, Mr. Hunt said. The enterprising company is headed by C. C. Bower, a well-known figure in appliance trade circles. An out-of-town visitors' headquarters featuring an attractive radio showroom, is one of the postwar extra services this distributor will offer his dealers.

BUILDING EXTENSION AT PROCTOR NOW UNDERWAY

Ground was broken on January 27th for an 80 foot extension to the east of Building 12, which, when completed, will provide approximately 25,000 additional square feet of floor space, the Proctor Electric Company, of Philadelphia, Pa., announced. This additional space will permit the company to meet the demands of the War Department and will also relieve some of the congested conditions now existing.

Approval to build this extension was secured from the War Production Board and other affiliated agencies and was based on the urgency of the war production programs. Proctor's excellent record of past production was also instrumental in securing permission to build this very necessary extension. It is expected that the new building will be ready for use within 60 to 90 days.

EUREKA JOBBER GROUPS ADVISE ON MARKET POLICY

To help formulate more effective postwar marketing policies, the Eureka Vacuum Cleaner Company has established a distributor steering committee, George T. Stevens, vice-president in charge of sales, announced recently.

The committee, selected by the company's distributors, consists of three members. Raymond Rosen, of the Raymond Rosen Company, Philadelphia, Joe Thiele, of the Winslow Thiele Company, San Antonio, and A. J. Reid, of the Cambria Equipment Company, Johnston, Pa. Meetings will be held at regular intervals and reports made to Eureka periodically.

Functions of the committee will be to counsel with the company on selling and merchandising policies, suggest ideas and make recommendations for promotional activities, and propose ways and means for meeting new distribution problems which may arise when civilian production is resumed.

POSTWAR MARKET FOR 60 MILLION RADIOS SEEN

A postwar market for 60,000,000 home radio receivers—enough to keep the industry at peak production for six years—is anticipated by the Westinghouse Electric and Manufacturing Company, according to the recent stockholders' quarterly report.

Reporting on an extensive survey which influenced the company in its recent decision to re-enter the home radio field with a complete line of home radio and television receivers as soon as materials and manpower are available, the Quarterly lists these five factors expected to affect strongly the postwar market:

1. Frequency Modulation (FM) radio will hasten total replacements by outmoding practically all sets now in use.

2. The demand for radio-phonographs will increase the size of the market by increasing the average sale.

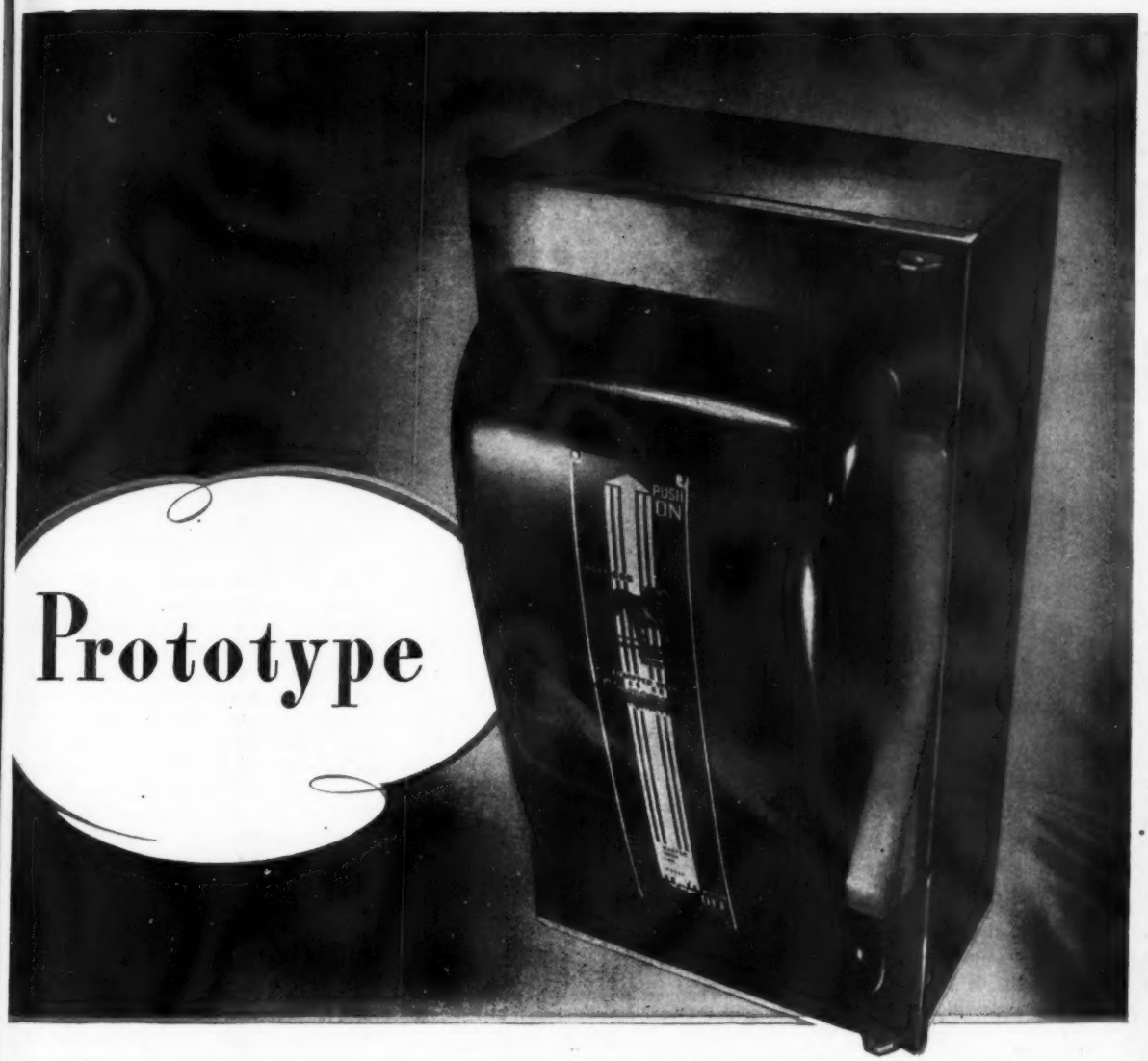
3. Returning service men, establishing new homes, will represent a huge new market.

4. The surface has only been scratched in the market for extra sets to provide listening convenience throughout the home.

5. A steady growth in home television is anticipated.

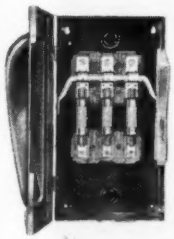
Most powerful of these forces in creating a huge postwar market will be the general acceptance of FM, a new kind of radio transmission which minimizes static and reproduces programs with life-like quality.

"Fifty FM stations are now on the air and several hundred will be built soon after the war," the Quarterly points out. "But there are nearly 60,000,000 radio sets in American homes that cannot receive this new and finer kind of radio transmission."



Prototype

Vacu-Break SAFETY SWITCH WITH "CLAMPMATIC" CONTACTS



A *Prototype,* the dictionary says, "is an original model after which anything is copied."

Measured by that definition, the BullDog Vacu-Break Safety Switch, with its many advanced features, is definitely the *prototype* of tomorrow's designs.

The exclusive Vacu-Break principle of arc suffocation—the Clampmatic feature which assures contacts tight as a bolted connection—new, simplified operating mechanism—modern streamlined design and attractive appearance—are but a few of tomorrow's safety switch features which are exclusive in the BullDog Vacu-Break Switches of today.

These *prototype* BullDog features are your guarantee against obsolescence, as well as your assurance of top performance at minimum cost right now!

Capacities from 30 Amp. to 1200 Amp. Write for illustrated folder.

BUY WAR BONDS

SALVAGE PAPER

BULLDOG
ELECTRIC PRODUCTS COMPANY

BOX 177, R. PK. ANNEX, DETROIT 32, MICHIGAN. In Canada: BullDog Electric Products, Ltd., Toronto. Field Engineering Offices in All Principal Cities.

Also Manufacturers of
SafToFuse Panelboards—Switchboards—Circuit Master Breakers — BUStribution DUCT, for "plug-in" power — Universal Trol-E-Duct, for flexible lighting—Industrial Trol-E-Duct, for movable "loads."

PERSONAL NOTES
About Men You Know

George O. Boomer has been elected president of the Girdler Corporation, Louisville, Ky., succeeding **Walter H. Girdler, Sr.,** who passed on recently. He will also remain vice-president and a member of the board of directors of the firm's affiliate, Tube Turns, Inc.

G. O. Boomer

Mr. Boomer has been a member of the board of directors of the Girdler Corporation since it was founded, and executive vice-president since 1938. He was formerly vice-president of the Ewald Iron Company and president of the Pittsburgh Fuel Company.

The Girdler Corporation has three divisions: The Votator Division, the Gas Processes Division, and the Thermax Division.

* * *

Robert M. Oliver, vice-president and general sales manager of the Proctor Electric Company, announces the appointment of **James I. Arnett** as service manager.

Mr. Arnett comes to Proctor from the General Electric Company where he served for eight years as service manager of the Home Laundry Equipment Department.

* * *

Announcement has been made of the association with the Electric Power Board of Chattanooga of **Edward Allen,** of Elmhurst, Illinois, as general service engineer. Mr. Allen is a graduate in electrical engineering from Louisiana State University in 1925 and for a number of years occupied

Edward Allen

engineering and administrative positions with the Public Service Company of Northern Illinois.

Since 1937 he has been associated with the **Electric Light and Power Magazine,** a publication with circulation in the electric utility industry. With this organization he served as engineering editor, and since 1940 has been editor-in-chief. In his capacity as general service engineer for the board he will supervise departments affecting the various operating units.

* * *

The appointment of **Leonard C. Blevins** to sales manager of the Meter Division of the Westinghouse Electric and Manufacturing Company has been announced by **Tom Turner,** Division manager. **H. L. Buechner** was appointed to succeed Mr. Blevins as watthour meter sales manager.

Born in Green Cove, Va., Mr. Blevins was educated at the Konnarock High School, Konnarock, Va., and graduated first in his class at Emory and Henry College at Emory, Va. He joined the Meter Sales Department of Westinghouse at Newark in 1920 and became sales manager of watthour meters in 1937. He recently completed 25 years employment with the Westinghouse Company.

Mr. Buechner, the new watthour meter sales manager, joined the company in 1916. He was appointed meter specialist in 1921 and has served in that capacity in Boston, Mass., Cincinnati, Ohio, and Pittsburgh, Pa.

A. W. Hedgren, general sales manager of the H. H. Robertson Company, has announced the appointment of **Joseph J. Siddall** as manager of commercial engineering. During the past ten years Mr. Siddall has served the company in the capacity of electrical engineer and as assistant manager of the Steel Floor Department. His work is concerned with the development of the Robertson Company's field policies, including presentations to various scientific societies, universities, and associations. He is active in the International Association of Electrical Inspectors, the Municipal Signal Association, the Pacific Coast Building Officials Conference, the Building Officials Conference of America, the Producers Council, and in the electrical and building fields throughout the United States.

* * *

G. H. (Rock) Smith has been appointed vice-president and general manager of the Deepfreeze Division of the Motor Products Corporation, according to a recent announcement of **A. L. Lott,** president of the company. For the past several months Mr. Smith has been associated with the Magnavox Company, Fort Wayne, Indiana, as a merchandising counselor. Prior to his consulting work he was general sales manager of the Hotpoint Company (Edison G. E. Appliance Company, Incorporated), Chicago, Illinois, for several years. Mr. Smith will be located at the North Chicago, Illinois, plant.

* * *

The Graybar Electric Company, Inc., announced the appointment of **George T. Bryant** to the position of assistant merchandising sales manager.

George T. Bryant

He will be located at executive headquarters in New York and will report to **R. C. Litchfield,** Graybar merchandising sales manager.

Mr. Bryant joined the Graybar or-

PRELUBRICATED SEALED BALL BEARINGS...NOW STANDARD ON TYPE CSP MOTORS UP TO 3 HP

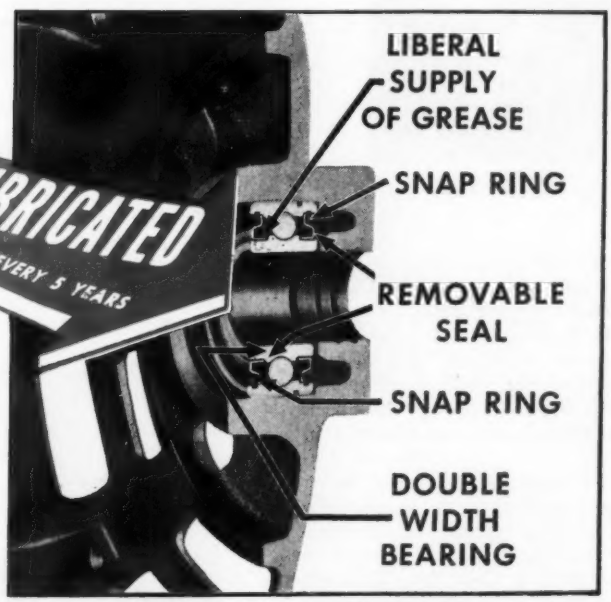
Bought now, Westinghouse Type CSP Prelubricated Motors need no greasing till 1950! Extensively field tested in thousands of textile motor applications, the prelubricated ball bearings in Westinghouse Type CSP general-purpose motors have proved they can operate five years . . . 24 hours a day . . . without greasing. Overgreasing and consequent grease seepage into windings is eliminated. One of the major items of induction motor maintenance, periodic greasing, has been reduced to one grease packing job in five years.

Every Westinghouse Type CSP Motor up to 3 hp carries the "Prelubricated" label. For complete information on how the Type CSP Motor can reduce your maintenance, write for D.B. 3100-CSP. Westinghouse Electric & Manufacturing Co., P.O. Box 868, Pittsburgh 30, Pa.

J-21317

FORGET LUBRICATION...

till 1950!



ADVANTAGES OF WESTINGHOUSE TYPE CSP PRELUBRICATED MOTORS

- **Prelubricated Sealed Ball Bearings** reduce lubrication maintenance . . . assure longer grease life
- **Improved Tufternoll Insulation**
- **Dynamically Balanced Rotor**
- **Die-cast Rotor** with oversize fan
- **Liberal Through-ventilation**—air enters front, leaves at drive end of motor

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

Type CSP Motors

ganization in 1935 as manager of the Kelvinator Department in the company's Southern District with headquarters in Atlanta, and in 1938 became merchandising manager in the Gulf Division, with headquarters in Houston. From 1942 to 1944 he was on leave of absence, serving the Government in Washington, D. C., first as chief of the Trade Relations Branch, OPA, and later as chief of the Fabricated Goods Division, Foreign Economic Administration.

On completion of his work in Washington in March, 1944, he was called to Graybar executive headquarters in New York and was appointed hearing aid sales manager, in charge of sales on Western Electric hearing aids for which Graybar is the national distributor. Mr. Bryant will continue to direct the company's hearing aid sales in his new capacity.

* * *

E. E. Potter, who for the past 14 years has been eastern general sales manager of General Electric Lamp Department, at Nela Park headquarters, has been elected a G-E commercial vice-president, according to an announcement made recently by **Charles E. Wilson**, G-E president.

E. E. Potter

P. D. Parker, who served over the same period as assistant general sales manager of the lamp department's Eastern Sales Division, has been named general sales manager of that division.

In his new capacity, Mr. Potter will be responsible for coordinating the diversified interests of the company in all its customer relations in the District of Columbia. This will involve principally General Electric's relations with the Government and its agencies. His headquarters will be in Washington, D. C.

A native of Springfield, Mass., Mr. Parker in 1919 joined General Electric's Edison Lamp Works at Harrison, N. J., as a miniature lamp salesman. In 1925, he was made sales manager of the Edison Lamp Work's miniature lamp division. He took his post as assistant general sales manager of the Lamp Department's Eastern Sales Division, Nela Park, in 1930.

P. D. Parker

Mr. Potter started his career with the Edison Lamp Works at Harrison, N. J., in 1910. He was soon advanced to post of lamp manager of the Syracuse (N.Y.) office and to position of lamp specialist for the New York district. By 1919, Mr. Potter was appointed manager of the N. Y. district which post he held until 1924 when he became assistant general sales manager of Edison Lamp Works. Mr. Potter was appointed general sales manager of the Lamp Department's Eastern Sales Division, at Nela Park, in 1930.

* * *

Appointment of **Curtis W. Lehner** as southeastern district manager for the Home Radio Division, Westinghouse Electric and Manufacturing Company, has been announced by **Harold B. Donley**, manager of the Division. Mr. Lehner will maintain headquarters in Atlanta and serve North Carolina, South Carolina, Georgia, Florida, Alabama, Louisiana and parts of Tennessee and Mississippi. A native of Terre Haute, Ind., Mr. Lehner has spent 20 years in the electrical appliance merchandising field, serving as both manufacturer's and distributors' representative.

Curtis W. Lehner

From 1924 to 1934 he was on the appliance sales staff of Westinghouse, at Mansfield, Ohio. Since 1934, he has been with the Westinghouse Electric Supply Company, merchandising subsidiary of the parent organization, serving from 1934 to 1938 as New England merchandise manager at Boston; and since 1938 as southeastern district appliance and lamp manager with headquarters in Atlanta.

* * *

Ralph J. Cordiner has been elected vice-president and assistant to the president of the General Electric Company with general administrative duties as designated by the president, it has been announced by **Charles E. Wilson**, president. Mr. Cordiner has been assistant to the president for the past 18 months, since his resignation as vice chairman of the War Production Board.

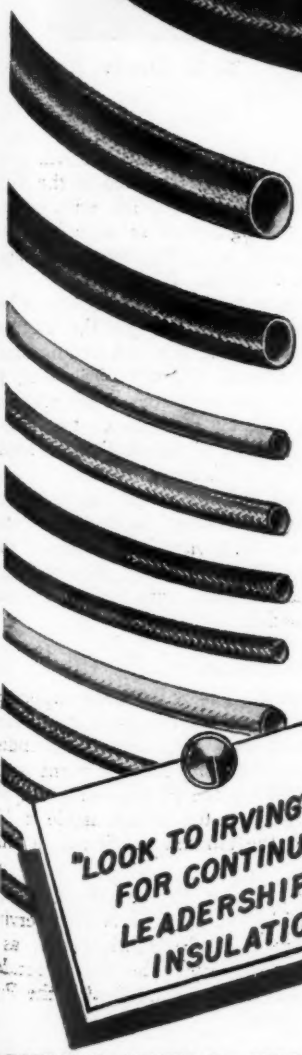
* * *

Paul D. Zottu, chief engineer of the Thermax Division of the Girdler Corporation, Louisville, Ky., recently was elected a fellow of the Institute of Radio Engineers, of which he has been a member since 1931. He was presented with the Fellowship Award by President **William L. Everitt** at the Institute's 1945 Winter Technical Meeting in New York on January 25. The honor was conferred, said President Everitt, "For his contributions in the field of high frequency heating, particularly in the application of dielectric heating in industry."

Paul D. Zottu

ARE YOU USING THE TUBING *best* SUITED FOR YOUR JOB?

Irvington *can Supply it*



BEST suited means a varnished tubing or sleeving that **meets** *every* service requirement . . . *at lowest cost!*

That's the way IRVINGTON . . . long the leader in electrical insulation . . . meets *every* tubing or sleeving need. For IRVINGTON makes *all* the types including non-fraying FIBERGLAS . . . high voltage IRV-O-VOLT . . . RADIO SPAGHETTI and SATURATED SLEEVINGS . . . in a complete range of colors and A. S. T. M. sizes.

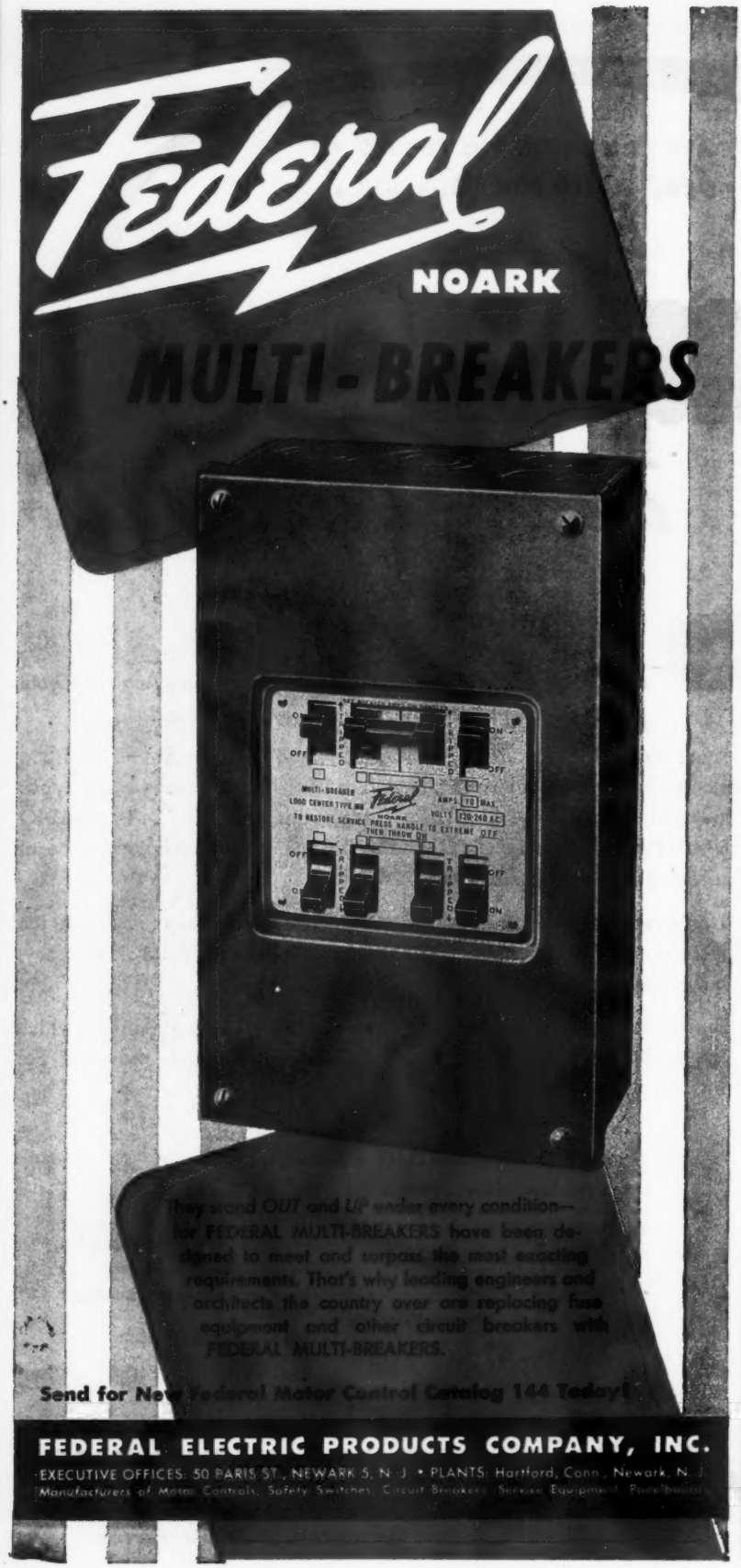
Thus a recommendation from IRVINGTON can be unbiased . . . you get the tubing *best* suited to your needs, not only from the standpoint of efficiency, but economy as well.

In addition, you get that extra increment of electrical surety which IRVINGTON'S 'know how' and 'manufacturing control' provides. For literature, or engineering assistance, write to Dept. 68.

IRVINGTON PRODUCTS:

- Cotton, Fiberglas, or Rayon Tubings and Sleevings — Varnished, Lacquered, or Vinylite Processed
- Non-Fraying Fiberglas Sleeving
- Transformer Lead Tubings
- Wire Identification Markers—Varnished or Plastic
- Extruded Plastic Tubings
- Fibron Plastic Tapes
- Varnished Fabrics and Papers
- Slot Insulations
- Harvel and Irvington Insulating Varnishes
- Cardolite Resins

IRVINGTON
VARNISH & INSULATOR COMPANY
Irvington 11, New Jersey


Federal
NOARK
MULTI-BREAKERS
They stand OUT and UP under every condition—
for FEDERAL MULTI-BREAKERS have been de-
signed to meet and surpass the most exacting
requirements. That's why leading engineers and
architects the country over are replacing fuse
equipment and other circuit breakers with
FEDERAL MULTI-BREAKERS.
Send for New Federal Motor Control Catalog 144 Today!
FEDERAL ELECTRIC PRODUCTS COMPANY, INC.
EXECUTIVE OFFICES, 50 PARIS ST., NEWARK 5, N. J. • PLANTS: Hartford, Conn., Newark, N. J.
Manufacturers of Motor Controls, Safety Switches, Circuit Breakers, Service Equipment, Panelboards

J. H. Townsend, former assistant to the general sales manager of the Silex Company, home appliance manufacturers, Hartford, Conn., has been named assistant sales manager.

* * *

L. W. Mercer, vice-president of the Square D Company, with headquarters in Detroit, has announced the following appointments:

T. B. Martin has assumed the duties of director of advertising for both the Detroit and Milwaukee electrical divisions of the company. He will continue to be headquartered at the Milwaukee plant from which office he has been serving Square D since 1929, as sales manager of the Industrial Controller Division.

T. B. Martin

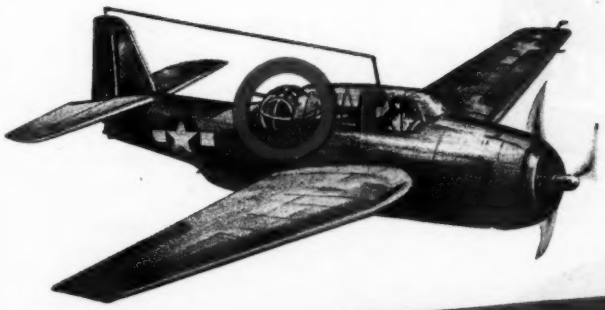
Dwight A. Roehm will continue his advertising activities for the Detroit plant under the title, advertising manager, Detroit Division. Likewise, **J. Clifton Carr** continues in his capacity of advertising manager of the Kollsman Division of Square D, with headquarters in Elmhurst, N. Y.

Frank Roby, who left the Industrial Controller Division in 1942 to enter the armed services, has rejoined the Square D Company as sales manager of that Division, with headquarters in Milwaukee.

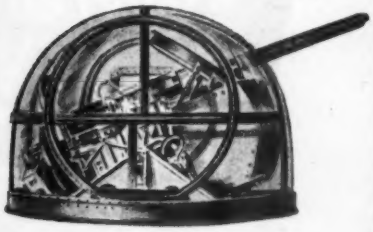
* * *

Paul G. Taylor has been appointed by the Faraday Electric Corporation to head their Appliance Merchandise Division. Among the first items to be released are the Plugmaster Cord Set and Broilmaster, which made a big hit at the Housewares Show, in Chicago.

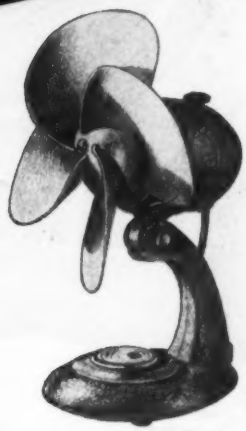
Mr. Taylor has recently been released by the U. S. Navy after serving two years in the South Pacific as a Lieutenant where he was wounded and has been decorated with the Purple Heart.



Turret for TBM-2 Avenger Torpedo Bomber



IF BOMBER TURRETS WERE *Safe-flex* FANS



Samson Safe-flex Rubber Bladed Fan

SAMSON UNITED COULD SUPPLY MORE THAN 125,000 A MONTH

For nearly three years, Samson United has been producing a highly intricate and difficult-to-build war product . . . the complete Turret for the Eastern Aircraft Avenger Torpedo Bomber. And in producing it, Samson has not only reached or exceeded its monthly quotas, but has also met the rigid requirements of a very particular customer—the United States Navy.

On the basis of this one war achievement alone, Samson has demonstrated that it *could*, if necessary, produce more than 125,000 Safe-flex Fans a month.

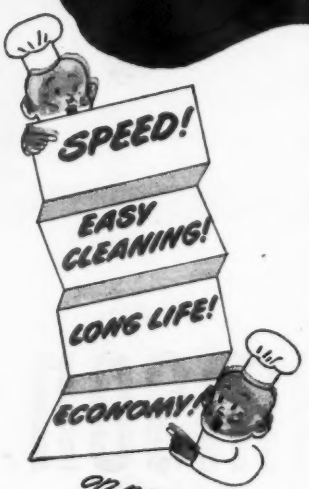
As soon as military restrictions are lifted, Samson will again build peacetime electrical appliances in volume quantities. One of the first to reach you will be the safe, efficient, rubber bladed Safe-flex Fan that has already brought cool comfort to thousands of homes and offices . . . and extra driving safety to even more thousands of motorists.

ELECTRICAL

SAMSON

APPLIANCES

SAMSON UNITED CORPORATION
ROCHESTER, N. Y.
Samson United of Canada, Limited, Toronto



POSTWAR COOKS WILL WANT THE BEST

Chromalox superiority is the result of twenty-five years continuous research and engineering in electric heating and cooking.

CHROMALOX DESIGN FOR BETTER COOKING

Cross section of Inconel sheathed tube shows how Chromalox provides maximum cooking contact surface.

Famous Chromalox Tubulars will soon again be available. Chromalox Superspeed and Heatfle—to fit any range—are available now.

Edwin L. Wiegand Co.

7600 Thomas Blvd., Pittsburgh 8, Pa.

C. B. Rosen, 1000 Peachtree St., N. E., Atlanta, Ga.
L. R. Ward Co., 403 Southland Bldg. Annex, Dallas 1, Texas; 932 M & M Bldg., Houston 2, Texas
W. R. Phillips, P.O. Box 2561, Raleigh, N.C.

on new ranges and for replacem

CHROMALOX

RC 3

Means Electric Cooking at its Best!

New Electrical Products

PANEL INSTRUMENTS

A new line of 1½-inch electrical instruments has been developed by Roller-Smith, of Bethlehem, Penna. Designed to withstand the extreme conditions of temperature, humidity, vibration and shock in aircraft service, they have been fully tested to prove their ability to maintain a service accuracy of 2%. Immersion tests have

shown their ability to withstand hydrostatic pressures up to 14.7 psi without case leakage.

These new 1½-inch instruments are available in d-c voltmeters in all practical ranges above 50 millivolts, and in d-c ammeters in all practical ranges above 500 microamperes. For certain applications lower ranges can be supplied. Further information may be obtained from Roller-Smith, Bethlehem, Pa.

PROTECTED-TYPE MOTOR

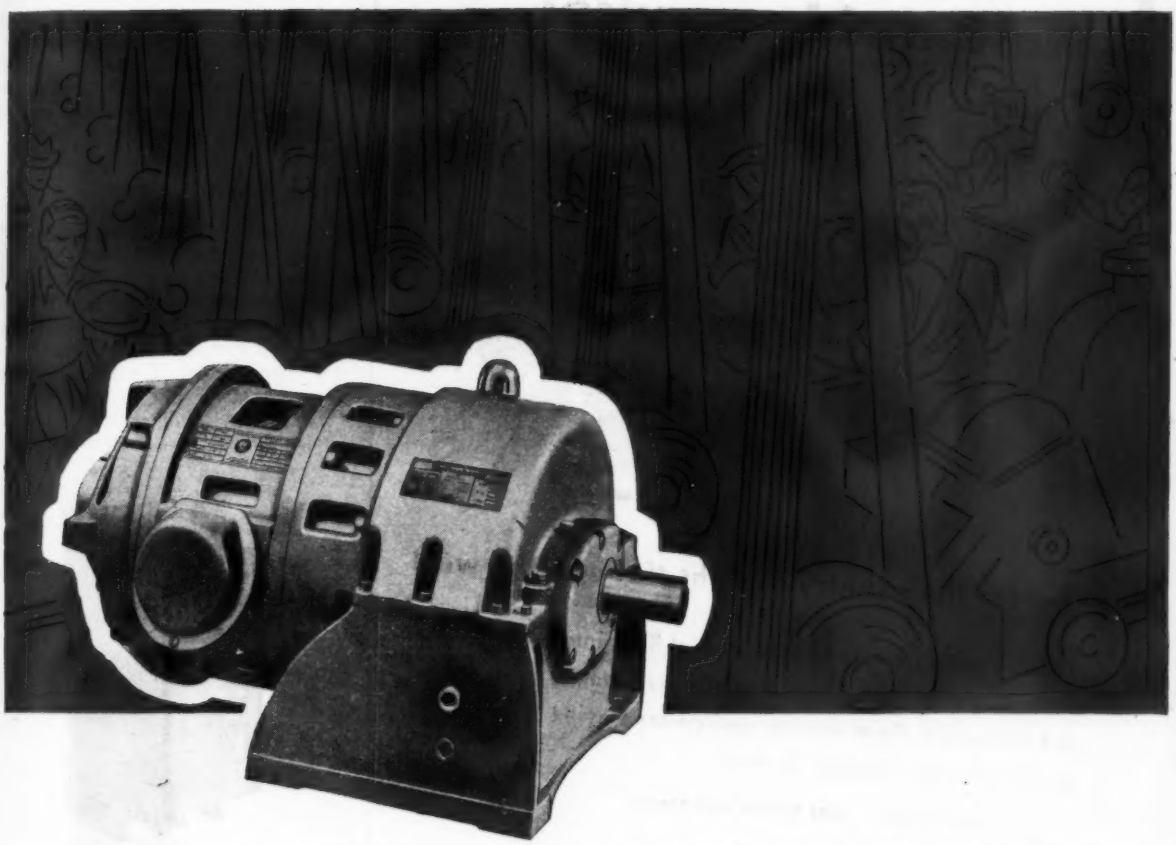
A new motor, combining the surplus capacity of the conventional open motor with protection against dripping liquid, falling metal chips and other foreign matter, has been developed by the Crocker-Wheeler Division of Joshua Hendy Iron Works at Ampere, New Jersey.

Rated 40 C rise, full-load continuous duty, with a 15 per cent service factor, protected-type motors provide added protection at open motor prices. At present, these motors are available in sizes up to and including the 284 frame. Mounting dimensions conform to the standards of the National Electrical Manufacturers Association.

There are no openings in the frame or shields above the horizontal center line. This, together with the shielded construction of the ventilating openings, makes protected-type motors suitable for machine tool and similar applications where other types of en-

When you modernize...

USE A GEARMOTOR



W.P.B. indicates that we'll all be pushing war production for many months. And then the heat goes on reconversion.

Much of your equipment, running at peak load since 1941, probably needs to be replaced or modernized. Whichever you need . . . replacement or modernization . . . use a gearmotor when the drive requires speed reduction. Here's why.

A gearmotor is the most efficient means of speed reduction available today. It's more compact . . . lasts longer with less maintenance . . . is easier to install . . . lower in over-all cost . . . and safer for your employees. These advantages are not idle claims . . . for they've been proved in actual industrial installations.

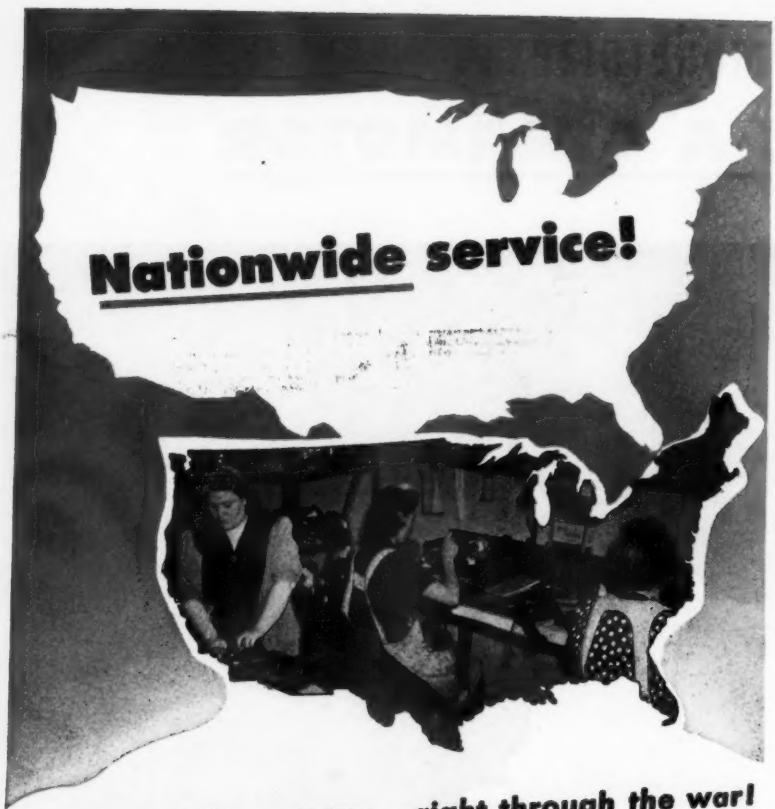
Westinghouse offers a complete line of gearmotors for any speed reduction application from 1 to 75 hp. Each unit is specifically designed to conform to industry-wide A.G.M.A. standards. Each new unit contains many improved exclusive design features. Call your nearest Westinghouse office for details. Westinghouse Electric & Manufacturing Company, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-07227

Westinghouse Gearmotors

PLANTS IN 25 CITIES . . OFFICES EVERYWHERE

Four out of five drives need speed reduction



Clear across the country... right through the war!

PROCTOR maintains service facilities at 81 points, located coast to coast. Despite wartime shortages and difficulties, these service stations are staying on the job right through the war.

MEANWHILE . . . KEEP BUYING WAR BONDS

...and ready for postwar!

Proctor's nationwide network of service stations will be ready—will be in operation—when the new and finer postwar Proctor appliances hit the market. It's another reason why appliance merchandisers like to do business with Proctor!

PROCTOR

NEWSMAKER IN APPLIANCE MERCHANDISING

PROCTOR ELECTRIC CO.—*DIVISION* OF PROCTOR & SCHWARTZ, INC., PHILA. 40, PA.

closures have been required in the past.

Centrifugal seals permit use of softer grease for better lubrication and longer bearing life. The company's Alucast rotor construction, in which the bars, fans and end rings are cast in one operation from aluminum alloys, is employed.

Other features of these many-purpose motors include: heavy cast frame construction, coils protected by Vinyl Acetal insulation, interchangeable front and rear shields, and specially designed guides for directing cooling air over all surfaces.

CIRCUIT BREAKER

A smaller, lighter, more compact, two-pole breaker with a more efficient blow-out action and a faster latch mechanism has been added to the line of circuit breakers made by the Heinemann Circuit Breaker Company of 120 Plum Street, Trenton, New Jersey.

The unit is fully electro-magnetic, designed for service on 230-volt alter-

nating current or 250-volt direct current of 50 amperes maximum. It may be connected either front or rear. It will carry full load continuously and has instantaneous trip at eight to ten times full load. It also has a selection of three time delays, any one of which may be specified.

Overall dimensions are: 5¼ inches long by 2-11/16 inches high and 2 inches wide.

TEST EQUIPMENT

The inherent accuracy and reliability of accepted laboratory circuits and techniques reduced to simplest terms for lay operation in everyday industry, characterizes the variety of instruments featured in the "Electrical Test Instruments" bulletin released by Industrial Instruments, Inc., 17 Pollock Ave., Jersey City, N. J. Among the instruments featured are the direct-indi-

"And who in the Div'l is Raco?"

That's easy, officer. Raco is a trade-marked line of All-Steel-Equip Co. . . . the complete line of steel switch boxes, outlet boxes and conduit fittings that has won the approval of architects, builders and contractors throughout America!

HERE'S WHY YOU, TOO, SHOULD INSIST ON THE RACO · ALL-STEEL · LINE . . .

CLEAN— Smooth, lustrous finish. No dirt, no grease, no chipping or flaking paint, and no rough edges.

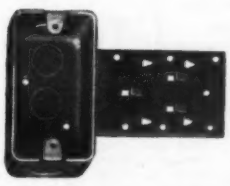
PACKAGED— Every Raco product comes to you in attractive cartons . . . with easy-to-read index showing product number, quantity and finish.

UNIFORM— All Raco Products are made to the same exacting standards as other precision metal products that All-Steel has been manufacturing for more than 32 years.

And in addition, Raco·All-Steel·Line is *sold nationally through wholesalers only.* It's the quality line, the dependable line. Look for the Raco trade-mark . . . the sign of better workmanship.

←400½-O—STANDARD (UTILITY) BOX. *Enameled or galvanized finish. With "Side-Mount" Bracket.*

400½-B—STANDARD (UTILITY) BOX. *Enameled or galvanized finish. With "Face-Mount" Bracket.* →



ALL-STEEL-EQUIP COMPANY, INC.
800 Kensington Avenue, Aurora, Illinois

RACO · ALL-STEEL · PRODUCTS
SWITCH BOXES · OUTLET BOXES · CONDUIT FITTINGS

cating comparison bridge, capacity and resistance limit bridges, resistance and capacitance decades, Wheatstone bridge, voltage breakdown testers and test fixtures, Kelvin bridge, megohm bridge and megohm meter, and conductivity apparatus. Copy may be had on request.

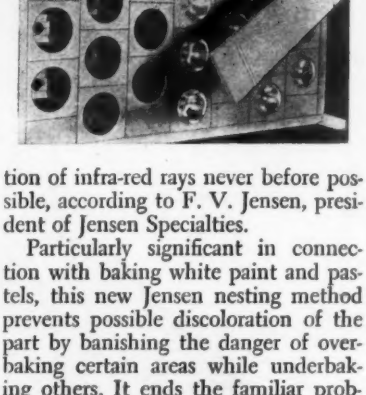
TRANSFORMER BULLETIN

The Gulow Corporation, 26 Waverly Place, New York 3, N. Y., has just published a new booklet describing the Gulow Vari-Former, a regulating transformer designed to provide a continuously variable voltage from a constant voltage source. Copies of this booklet available upon request.

JENSEN NESTING METHOD

An entirely new "nest of heat" method of spacing R-40 reflector lamps in infra-red ovens that now assures both full and even coverage of the article being baked, has been announced by Jensen Specialties, Inc., Detroit, manufacturers of Jensen "Dual-heat" infra-red ovens.

This new method, whereby the lamps are staggered rather than aligned, gives a new over-all distribu-



tion of infra-red rays never before possible, according to F. V. Jensen, president of Jensen Specialties.

Particularly significant in connection with baking white paint and pastels, this new Jensen nesting method prevents possible discoloration of the part by banishing the danger of overbaking certain areas while underbaking others. It ends the familiar problem of getting undesired stripes of alternate darks and lights.

Nesting is achieved by advancing the lamps in each row a quarter step or half step or more beyond the lamps in the preceding row, according to the requirements of the job. Blank spaces are thus eliminated and full, even coverage made sure.

Due to the more intensive concentration of infra-red rays attained by nesting, far greater heat densities, too, are now possible, with resulting new savings in time required for the baking cycle. Complete details are available from Jensen Specialties, Inc., 9331 Freeland Avenue, Detroit 27, Michigan.

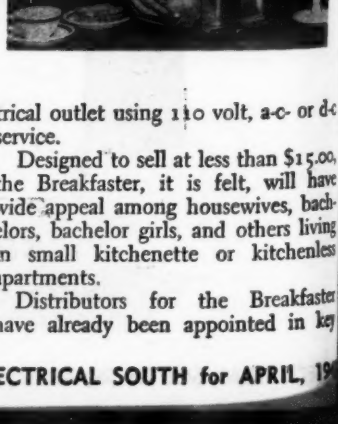
COMBINATION APPLIANCE

One of the exciting new appliances designed to make postwar housekeeping a pleasure is the new electric toaster-cooker combination known as the "Breakfaster."

Manufactured by Calkins Appliance Corporation, South Bend, Indiana, and first displayed at this year's Housewares Show, in Chicago, the Breakfaster is designed to prepare toast and coffee or similar foods simultaneously, in one simple, compact unit. It is a combination hot plate and grill, performing the functions of both within the limits of its size.

The secret of the unit's dual character lies in the use of a single electric element for both cooking and toasting functions. The element is located near the top. Upper surface of the unit forms a hot-plate and a compartment below serves as the grill. Space is ample to accommodate a double deck sandwich.

The Breakfaster weighs only two and a half pounds. It is chromium-plated and is easily moved about by attractive, plastic handles which form the base. It operates from any elec-



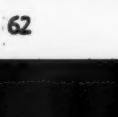
trical outlet using 110 volt, a-c- or d-c service.

Designed to sell at less than $15.00, the Breakfaster, it is felt, will have wide appeal among housewives, bachelors, bachelor girls, and others living in small kitchenette or kitchenless apartments.

Distributors for the Breakfaster have already been appointed in key

Cross section Showing Indentations.

E·M·T·UP THE QUICK WAY
Two Squeezes and it's Set



TWO QUICK SQUEEZES give you Finer, Faster Conduit Connections. B-M Fittings do away with the twisting, turning and tightening of nuts and save you valuable time and materials. Then too, they are stronger, neater and much easier to work with in tight places. Start using B-M Fittings today. Have more satisfied customers—more profits from each job!
(All B-M Fittings carry the Underwriters Seal of Approval)

DISTRIBUTED BY
The M. B. Austin Co., Chicago, Ill.
Clayton Mark & Co., Evanston, Ill.
Clifton Conduit Co., Jersey Cy., N. J.
Gen. Electric Co., Bridgeport, Conn.
The Steelduct Co., Youngstown, Ohio
Enameled Metals, Pittsburgh, Penn.
National Enameling & Mfg. Co., Pittsburgh, Pa.
Triangle Conduit & Cable Co., New Brunswick, N. J.

Prompt Deliveries on Properly Rated Orders

BM
BRIEGEL METHOD TOOL CO. • Galva, Ill.

areas. Open territories are rapidly being closed. A substantial backlog of orders has been built up. Production will get under way just as quickly as manufacturing limitations on this type of product have been lifted.

HIGH FREQUENCY HEATER

Designed and built especially as a production unit for the plastics molding industry, the new model X875 Thermex Red Head is the most compact high frequency heating unit yet developed. Having an output of 400 watts, this automatically controlled machine is the product of The Girdler Corporation, of Louisville, Kentucky, manufacturers of industrial dielectric heating equipment.

Distinguished by its brilliant red top, this new Thermex weighs only 250 pounds and is 15 inches wide, 23 inches high and 29 inches deep. It will actually fit into the space usually left between presses. Ordinary 230 volt, 60 cycle single phase current is used. The built-in heating cabinet and removable 7x10-inch tray make this Girdler machine an extremely practical and flexible piece of equipment. The upper electrode can be adjusted to a height of 2¼ inches above the tray.

Actual production tests over a wide variety of materials show the Thermex Red Head will raise the temperature of 1/3 of a pound of average material 170° F. in one minute.

There are no dials, no tuning, nor even a push button. Closing the preform drawer all the way in automatically turns on the high frequency power and timer. At the end of the prescribed time the red indicating light goes out and the operator transfers the heated preforms to the mold cavities in the press.

LIGHTING BOOKLET

Wabash Appliance Corporation, manufacturers of reflector type lamps for industrial and commercial lighting

It sure is, Herman. Funniest thing about it though is this. If you ring enough doorbells somebody will buy it. For, nowadays, they say that a fellow can sell anything on which his conscience will let him put a price-tag. That's what they say . . .

Suppose that's true of the dealer who sold fans before the war and will again after? Think he'll fall for the first "pip" that comes along? Guess the years he's been staring his eyes out for something to sell have worn him down?

Guess not! For the successful dealer has plenty of selling savvy. He knows that he can't afford to make the same mistake *once*. His *goods* must be just that or it's no go.

He's taken chances, sure. But when it comes to the quality of the products he sells, he keeps the cards close to his vest. For he's seen many a new face in the fan game. He's seen them come—and go. And he's seen the name of Robbins & Myers come, years and years ago, to stay.

He knows he can count on getting R & M fans the minute that reputable fan manufacturers get the good word, no sooner—and (he can be sure) no later.

"You've never heard of this but it's a pip!"

IF you have any problems involving electric fans, if you need repair parts for R & M fans or want complete repair jobs done *for* you—get in touch with us at Springfield, Ohio, or at the nearest R & M branch office listed here.

New York.....200 Varick St.
Chicago.....2400 W. Madison St.
Philadelphia.....401 N. Broad St.
San Francisco.....237 Rialto Building
New Orleans.....116 Arlington Dr.
Dallas.....1100 Cadiz St.
Kansas City, B. M. A. Bldg. ..Room 325, 215 Pershing Rd.
The Robbins & Myers Co. of Canada, Ltd.....Brantford, Ont.

ROBBINS & MYERS, Inc.
FOUNDED 1878
MOTORS · HOISTS · CRANES · MACHINE DRIVES · FANS · MOYNO PUMPS

installations have prepared a special booklet for lighting engineers, featuring a set of charts containing illumination values based on various spacings and mounting heights.

In addition to this valuable data, information on reduction of maintenance cost and attaining peak lighting efficiency is contained therein.

Obtainable by writing to: Wabash Appliance Corporation, Birdseye Lamp Sales Division, 345 Carroll Street, Brooklyn 31, New York—requesting booklet No. 1-545.

VIKING BLOWERS

The Research Laboratory of Viking Air Conditioning Corporation, 5600 Walworth Avenue, Cleveland, Ohio, has developed the new series "V" Viking Blowers for furnaces and air conditioning units, the highly desirable characteristics of compactness being incorporated with other important features. Designed to operate against the high static pressures encountered in modern air conditioning units, the series "V" blowers perform with an unusual degree of quietness. The remarkable thing about these new blowers is that the reduction in overall size of from 10% to 15% has been accomplished without impairing the operating efficiency of the blower unit. In fact, greater quietness, lower power consumption, and slower speed, plus the small size of the blower casing, make it ideal for the new air conditioning unit design. Photograph shows the comparative housing sizes of the old and new models.

CLAMP FIXTURE

Many superior advantages are claimed for a new steel clamp fixture just announced by the Cincinnati Tool Company, 4106 Montgomery Road, Cincinnati 12, Ohio.

The frame, slide, and screw of this clamp fixture are all of steel, making it an exceptionally rugged tool and insuring longer life than is possible with fixtures made of grey iron or malleable iron castings.

A feature strongly stressed by the manufacturer is the slide, made of heat-treated steel. Simple in design, this slide will not slip on pipe under pressure, yet it is easily released when pressure is removed. Clamping surface is 1½x1½ inches.

This fixture is said to be ideal for wood glueing and metal welding. It fits ½-inch pipe in any length so that clamp of any size opening can be made. For complete details write for Bulletin 622.

CLOTHLESS COFFEE FILTER

Working on war jobs and farm chores has made it necessary for the homemaker to save time in preparation of meals. New housewares items must be faster and easier to use. That's one reason for the instant popularity of Vaculator new Dutch Clothless coffee filter so necessary for "Coffee that satisfies."

Now Vaculator announces that its well known line of vacuum glass coffee makers is equipped with the new Dutch clothless filter. It's a simple unit of two sanitary white porcelain china discs and a double prong clip. The coffee is filtered through the discs resulting in sparkling clear coffee without the use of cloths or paper filters.

The clip locks the filter securely in place in the funnel tube of the coffee maker eliminating any jiggling or popping up or falling out. The heavy duty porcelain disc is so constructed that it is almost unbreakable.

All Vaculator models in the 4, 8, and 12 cup sizes have the new feature of the Dutch clothless filter at no increase in the price. Vaculators with this modern improvement still sell at $2.95 and $3.95 each. Pyrex brand glass is used for the bowls of all Vaculators and all models have the Magic Seal rubber gaskets. An insurance policy with each model guarantees the world's finest cup of coffee or your money back.

ELECTRIC DRILL

A new development of Thor "Armored in Plastic" portable electric drills that introduces a side handle type machine 20 per cent lighter than comparably rated drills with aluminum casings has been announced by Independent Pneumatic Tool Company, of Chicago.

New DUTCH Clothless
COFFEE FILTER
PAT. PEND.
50¢ LIST
DEALERS EVERYWHERE ACCLAIM IT A
RED HOT PROFIT MAKER!
The Modern PRACTICAL Clothless Filter
★ SPARKLING CHINA
Virtually Unbreakable!
★ SIMPLE, EFFICIENT
No Cloth or Paper!
★ SNAPS IN EASILY
Can't Fall Out!
★ FITS PRACTICALLY ALL MAKES
LAST CHANCE! Special Introductory BONUS OFFER
You get a bonus of one DUTCH filter with each 11 that you buy. At 40% off list, you pay $9.90 per case of 3 dozen. Retail them for $18, earning generous
45% PROFIT
AT YOUR JOBBER NOW
DYNAMIC PROMOTION
FREE! Full-color DISPLAY DISPENSER
BACKED BY A GIANT ADVERTISING CAMPAIGN
VACULATOR
Chicago 6
NOW—AT NO EXTRA COST
every Vaculator is equipped with the new DUTCH Clothless FILTER
New! DUTCH clothless Coffee Filter
HURRY . . . "FREE GOODS" DEAL EXPIRES APRIL 30th!

The new side handle type Thor drills are identical in construction to the original "Armored in Plastic" pistol grip machines, except for the side handle. The gear case, field case and handle are molded in the specially-developed "Thorite" plastic which has surpassed performances of heavier metal housings for durability and cool, easy handling on every type of heavy production and maintenance jobs.

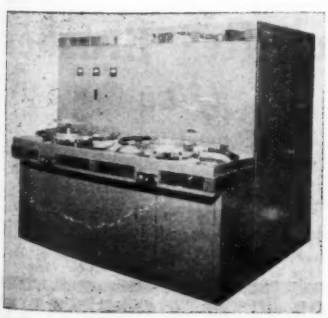
All internal operating parts are supported in a metal frame entirely separate of the plastic housings—an independent unit so constructed that the tool will operate perfectly with all housings detached.

The new Thor "Armored in Plastic" side handle drills are available in three speeds, 2500 r.p.m., 3750 r.p.m., and 5000 r.p.m., weigh 3½ pounds, and are 7-9/16 inches in length. Complete information and prices may be obtained by writing for Bulletin No. E-806, Independent Pneumatic Tool Co., 600 West Jackson Blvd., Chicago 6, Illinois.

ELECTRONIC HEATER

A new 50-kw electronic heater for surface and localized hardening of gears, rods, and other parts and for annealing, brazing, and soldering operations, has been announced by the Industrial Heating Division of the General Electric Company. Ideal for use in metal-working plants, the new heater incorporates all of the important features of the 5-kw and 15-kw G-E heaters and, in addition, is capable of heat-treating much larger parts or the same size parts in less time. This heater is readily applicable for many different heating jobs merely by changing the induction-coil fixture.

Available in models rated either 230 or 460 volts, 3-phase, 60 cycles, this heater is unusually easy to operate.

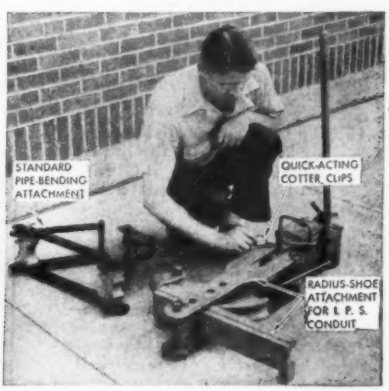


The parts to be heated are positioned in the fixture, and the start button is pressed. Automatic controls then regulate the heating and quenching cycles, assuring duplication of results on each part. An attached work table provides

Speed Pipe Bending
THIS EASY GREENLEE WAY!

1 One stroke of quick-positioning lever brings shoe snug against pipe, ready for application of pressure. This short-cut eliminates time and labor of hand-pumping shoe into position. Then lever handle is transferred to operating lever.

2 By pumping operating lever handle, hydraulic pressure is exerted on pipe. Bend is complete when contour of shoe is almost filled. Graduations on ram permit operator to identify precise length of travel of ram, for making exact, duplicate bends.



3 Operating lever is forced down to its lowest position, releasing pressure. Handle is then transferred to the quick-positioning lever for withdrawal of ram. Pipe can be withdrawn entirely or moved for second bend. Then the process in steps 1, 2 and 3 is repeated.

4 Quick-acting cotter clips (an exclusive GREENLEE development) make change to another type of pipe-bending attachment a fast, easy job. With attachments, one bender can handle pipe, rigid and thin-wall conduit, bus bars and larger sizes of tubing.

Whatever the bending job . . . pipe up to 4½", rigid and thin-wall conduit, tubing, bus bars . . . there's a **GREENLEE** *to do it better, faster! It's a portable tool, compact, easily carried to the job—packed in wooden carrying case.*

FREE CATALOG 33E

Get complete facts on the complete line of GREENLEE Hydraulic and Hand Benders and other time-saving tools. Write today! Greenlee Tool Co., Division of Greenlee Bros. & Co., 1764 Columbia Avenue, Rockford, Illinois.

Get Ready with Greenlee!

REGISTERED TOOLS

GREENLEE

FOR THE CRAFTSMAN

WHAT IF YOU HAD TO KEEP TRACK OF THEM ALL

The 6750 manufacturers of electrical products, components and accessories, make untold millions of items for the electrical industry.

Their catalogs present a bewildering variety of types, uses, sizes and prices.

To help you pick and choose what's best for your job is one reason why electrical wholesalers were born.

These wholesalers make it their business to help you in two ways:

(1) To recommend and supply you with standard electrical materials.

(2) To keep you posted on new developments in the industry—improved designs, and short cuts that make construction work more profitable and maintenance and repair jobs easier.

Why not set up a working relationship with your local wholesaler. Profit by his personal attention to *all* your electrical needs.

All T&B products are distributed exclusively through the service organizations of T&B Electrical Wholesalers.

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Incorporated
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The Thomas & Betts Co.,
Incorporated
518 Masonic Temple Bldg.
New Orleans 12, La.

T&B
THE THOMAS & BETTS CO.
INCORPORATED
manufacturers of electrical fittings since 1898
ELIZABETH, 1, NEW JERSEY
In Canada Thomas & Betts Ltd., Montreal

two heating positions, permitting full utilization of the high-frequency power supply to secure maximum production.

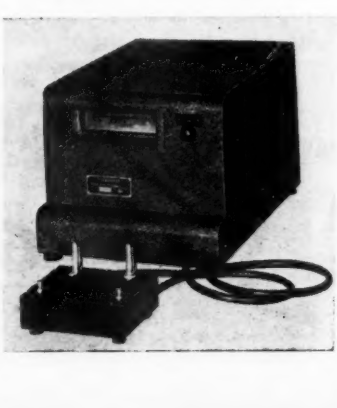
Completely enclosed in grounded steel, which minimizes radiation and affords protection for the operator, the entire unit weighs approximately 6000 lbs. and is 84 inches wide, 94 inches deep, and 82 inches high over-all. The electronic heater cabinet is composed of two compartments, one of which contains an air-cooled transformer to step-up power supply voltage to the six rectifier tubes, and such accessory items as a contractor, a tap-changing switch, and filament transformers. The other compartment contains the high frequency components—a single water-cooled oscillator tube and a bank of water-cooled capacitors. The two compartments are separated by a heavy, protecting partition. Meters and controls are conveniently mounted on the front of the two compartments, which are securely bolted together.

NEW CRANKLESS TESTER

Model 238 Vibrotest is the designation of a remarkable new crankless insulation resistance tester announced for the first time by Associated Research, Incorporated ,231 South Green St., Chicago 7, Illinois. The indicating instrument is a spotlight galvanometer having a 100 millimeter scale calibrated 0-20,000 megohms direct reading, at a potential of 500 volts d-c self-contained.

This new model, covering ranges heretofore regarded as impossible by such means, represents significant advancement in the building within the United States of a crankless tester, the American improvement on instruments of this capacity formerly imported from Germany and England.

Power is supplied from two No. 6 dry cells mounted in the back of the instrument, and providing 500 volts d-c for operation through the synchronous vibrator system employed in all Associated Research's standard Vibrotests. The indicating instrument is permanently mounted within the new unit—readings being taken through a shielded opening for clarity and ease of reading. Model No. 238 is securely cased, ruggedly built, small and compact for continuous service, and easily transportable; dimensions, 16 x 11 x 9 inches; weight, 24½ lbs.



Other Associated Research Vibrotests have long been known and used by electrical fields and industries. Full details may be had by addressing the manufacturer.

VARNISH SELECTOR

The job of selecting the correct varnish for treating and insulating coils and windings and for general motor repair can be simplified by using an insulating varnish selector devised by the Resin and Insulation Materials Division of General Electric Co., Schenectady 5, N. Y.

The selector, which may be obtained free from any local G-E merchandise distributor, is easy to operate. From a list of varnish applications, the user selects the one for which he

HELWIG SPEER
Carbon Products

Multiflex Brushes
Give
Better Commutation
Longer Life
Less Commutator Wear
That Extra Demand Required
Better All Around Performance
KEEP THE BONDS YOU BUY

HELWIG COMPANY
2544 NORTH 30th ST., MILWAUKEE 10, WIS.
Southern Offices:
323 Northwest Second St.,
Oklahoma City 2, Oklahoma
Telephone: 2-6881
2005 McKinney Avenue, Houston 3, Texas
Telephone: Preston 1610

wants a varnish. He moves a slide until an arrow points to the chosen application. When this is done, the catalog number of the varnish appears, along with complete data on characteristics, type of base, recommended thinner and baking or air-drying time.

The selector lists seven varnishes, each recommended for a specific application.

NEW CIRCUIT TESTER

A new circuit tester called the "Lo-Volt" Test Glo, intended for testing circuits from 5 to 50 volts, is announced by the Ideal Commutator Dresser Company, 1017 Park Avenue, Sycamore, Illinois. It simplifies the testing of open circuits, burned out fuses, and can be used for indicating the relative value of line voltage.

New Electrical Books

ELECTRICAL ESSENTIALS IN MARINE SERVICE

By J. M. Dodds. Published by McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N. Y. 419 pages, illustrated. Price $3.00.

The first of three volumes giving a thorough reference handbook treatment of all phases of marine electrical work except radio, for use by marine and shipyard electricians engaged in installation, testing, repairing, and maintenance work. This volume is easy to read, easy to understand, and explains the essential principles of electricity and magnetism and the characteristics of electric circuits. Alternating and direct currents are discussed together and their various uses described and compared.

The two following volumes will deal with Electrical Power Sources in Marine Service and Electrical Power Uses in Marine Service.

1945 NATIONAL FIRE CODES

Published by the National Fire Protection Association, 64 Batterymarch St., Boston, Mass. 592 pages, illustrated, Price $3.00.

This volume, covering flammable liquids, gases, chemicals and explosives, appears at a time when war demands are for increasingly larger quantities of these materials, whose fire and explosive hazards involve great danger to human life and property. The book assembles for the convenience of the

THE IWI MAN
WITH A WISE PLAN
knows that
MALLORY
CAPACITORS
Can take it!
Sturdy and strong, built to give good service for a long time, Mallory Capacitors last.
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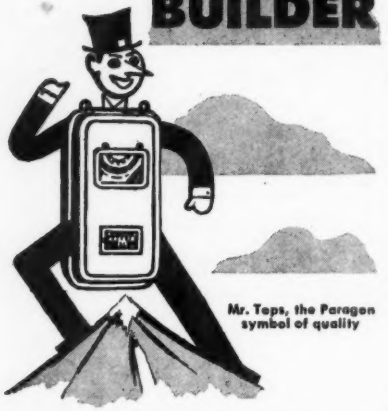
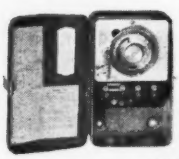
"TOPS" AS A GOOD WILL BUILDER



Mr. Tops, the Paragon symbol of quality



300 Series

Paragon time switches and industrial timers win friends and satisfy customers. They insure top quality installations. Use them on your next job.

Only $13.00 List

300 Series self-lubricating time switches are accurate and durable for controlling stokers, oil burners, blowers, pumps, valves, air conditioning, etc. America's leading time switch value.

800 Series

Time Delay Relays

The time cycle of Paragon synchronous motor operated, instantaneous reset, type relays is unaffected by vibration or changes in ambient temperature. For motor and tube protection.

700 Series

7-Day Time Switches

. . . are designed for presetting heating or ventilating schedules on a weekly basis with independent daily operations.

Manually Preset Timers

The 2500 series is designed to close or open a circuit at the end of a preset interval, such as attic fan control.

Send for complete bulletin. All these units are designed and built by a pioneer in the automatic timing field.

2500 Series

PARAGON ELECTRIC CO.
713 OLD COLONY BUILDING
CHICAGO 5, ILLINOIS

Paragon Chicago
BUILDERS OF ELECTRICAL EQUIPMENT SINCE 1901

reader the many standards dealing with these hazards.

This new volume contains many tables and drawings and is divided into 9 parts as follows: Flammable Liquid Storage and Handling; Oil and Gasoline Burning Equipment; Liquified Petroleum Gases; Utilization of Flammable Liquids; Gases; Refrigeration and Fumigation; Explosive and Nitrocellulose Materials; Tables of Properties – Hazardous Chemicals, Flammable Liquids; Flash Point Tests.

Industrial Service Specialists

(*Continued from page 24*)

an additional contract. This is for the internal wiring on 64 big lathes, produced for the government, and installation of sixty-four 2-horsepower motors.

This firm, while preaching modernization of industrial plants in wiring and lighting, practices the same doctrine in its own quarters.

The motor shop is equipped with all the time-saving, labor-saving devices that are available for the handling of heavy motors. The latest installation is a cleaning vat, which maintains a solution at 180 to 200° F. Gummed up motor housings and parts come out of this solution completely clean, resulting in a saving of 50 per cent in clean-up time.

On the other side of the business—industrial wiring and maintenance—there is also the latest in equipment, including a telescope type, rolling steel scaffold, hydraulic benders for ½ to 3 inch conduit, electric pipe-threading machine, and an electric hammer for drilling holes in concrete.

The Foshee Company has recently completed an expansion which puts the motor and industrial departments in separate sections of the building. This expansion also affords a new, roomy, well lighted sales room, with offices of Foshee and Sossaman adjoining. New paint and new lettering have transformed the front elevation.

New clean-up vat installed by Foshee Electric Company saves 50 per cent in clean-up time in motor department. Electric hoist takes housings from hot vat and deposits them in bin at left where they are cooled and solution is washed off with hose. The vat was supplied by Aeroil Burner Company.

South Leads Nation in Electrical Hay Drying

(*Continued from page 19*)

about $16.50, plus the cord for automatic control. A special thermostat was displayed which is constructed for inserting to a considerable depth into the hay for automatic control of the motor and fan on the basis of hay temperature.

Paragon Electric Company's representative explained that the company manufactures time switches exclusively. The switch can function as a cycle repeater, as an ordinary time switch, or as a combination of the two. His

FOLDING DOUBLE CUPPED
★ WASHER LUGS ★
A SIZE and TYPE for every need
OPEN
FOLDS OVER HERE TO CLOSE
NO SPECIAL TOOL REQUIRED
WRITE FOR BULLETIN 6
KH
KRUEGER & HUDEPOHL
Solderless Terminal Lugs and Connectors
VINE AT THIRD—E 5 • CINCINNATI 2

company is interested in knowing the minimum requirements so that a very simple type of time switch can be developed for hay drying.

The War Food Administration reported that between 1,000 and 1,200 units, including both fan and motor, will be available for installations this year. The manufacturers may buy motors and sell them with their fans, or dealers can purchase motors at a somewhat lower priority and sell with their fans. Requests have been received from dealers in 13 states for a total of 636 units.

Among other reports by representatives at the conference were:

Aerovent Fan Co. expected to be able to deliver motor and fan units this spring. Motors will range from 1 hp to 7½ hp. Early applications for equipment were urged.

American Blower Corp. has been furnishing the centrifugal type fan for most installations. It will be able to deliver equipment through regular distributor outlets. Fans will be furnished with or without motors, as desired.

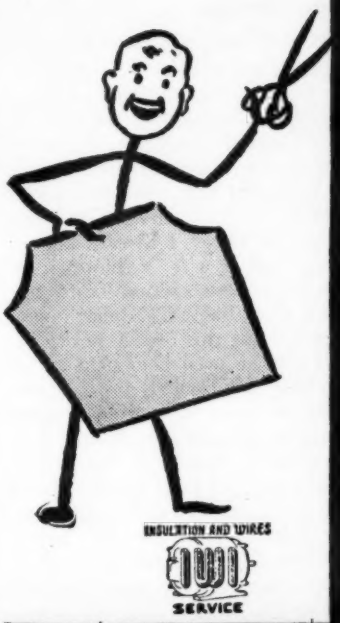
Buffalo Forge will be able to supply equipment, particularly fans. Motors will be the bottleneck. The Buffalo Forge representative believes the backward curved blade fan, due to its higher efficiency and lower horsepower requirements, may have merit over the forward curved centrifugal type.

All states represented at the conference were asked to outline briefly their plans for 1945. In general, it was indicated that they will proceed slowly with installations, attempting for the most part to take care of requests. The desire is to hold back the number of installations to some extent, due to limited personnel and to determine the adaptability of barn hay drying to varying climatic conditions as well as variations in types of legumes and grasses.

There are now 209 installations in the southeastern states, including four which use heated air, and about 60 in the remainder of the country. The installations in 1944 include:

Georgia, 7; Kentucky, 3; North Carolina, 18; South Carolina, 4; Tennessee, 25; Virginia, 82; Mississippi, 5; West Virginia, 2. That made a total of 146 installations in 1944. Previously there were 63 installations, including one in Alabama.

However, 131 farmers in Southeastern states were unable to get equipment in 1944. A farmer should get his WPB priority ratings for equipment before placing orders. His agricultural agent can help him.



THE IWI MAN WITH A WISE PLAN *finds*

TAYLOR FIBRE

can be tailored to meet customer's exacting requirements.

Fine fibre and phenol fibre available in rods, sheets, tubing and washers.

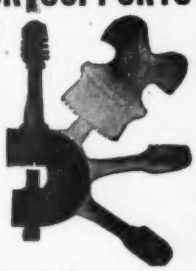
A variety of grades, sizes and thicknesses, all listed in the IWI Blue Catalog for your picking and purchasing convenience.

INSULATION & WIRES, INC.

2127 PINE STREET • ST. LOUIS, MO.

"EFFICIENCY" DEVICES FOR CONDUIT AND CABLE SUSPENSION

EFFICIENCY ADJUSTABLE INSULATOR SUPPORTS



• The Wide adaptability of the EFFICIENCY Adjustable Support makes it the favored choice whereever electrical conductors are to be installed . . . in industrial plants . . . in all open steel construction. They clamp to the beam . . . saves drilling or punching of the beam. Note that the adjustable features of this support permits the adjustment or movement of fittings up to 120° from vertical position. The Adjustable Support is designed to carry insulators and fittings at any angle, either above or below the beam. It permits the mounting of several conductors on one support, where necessary, or any combination of wires or cables by the addition of various fittings.

Write today for our Catalog No. 38B . . . contains complete information on this and other EFFICIENCY Electrical Devices.

Efficiency ELECTRIC AND MANUFACTURING CO.

MANUFACTURERS OF EFFICIENCY ELECTRICAL DEVICES FOR CONDUIT, WIRE AND CABLE SUSPENSION

EAST PALESTINE, OHIO

Time Tested!

LARK'S WIDE-AREA, LOW-TEMPERATURE EATING PRINCIPLE HAS STOOD THE TEST OF TIME AND TOUGH SERVICE

ypical of the many old Clark Electric ater Heaters still in daily service is the ie above in the home of G. E. Aldrich Fillmore, N. Y. Says Mr. Aldrich, This heater has been in constant use r better than 18 years, and the upkeep is been practically nothing."

GENTLE HEAT MEANS LONG LIFE

ie secret of Clark's long, trouble-free rvice is "gentle heat"—heat applied a broad band at a temperature only ghtly higher than that desired in the ater. This wide-ea, low-tempera-ire method of at application, oneered by Clark, iminates de-ructive liming, rrosion and oxi-tion—proved by ig service in areas iere other types heaters have led in only a few onths.

★

LARK FRANCHISE FOR UR TERRITORY MAY L BE OPEN. WRITE FOR FULL DETAILS.

cGRAW ELECTRIC COMPANY
ARK WATER HEATER DIVISION
01 West 65th Street, Chicago 38

CLARK
ELECTRIC WATER HEATERS
A Toastmaster Product

Ideas for Postwar Range Design

(*Continued from page 18*)

enclosed units make it safer than when it was first used with open type units. Furthermore, the voltage to ground remains 110 volts.

I have not mentioned the convenience outlet on this range because it has been my observation, that most of these, on ranges I have examined, are inoperative with a blown fuse which the owner could not locate and, in some cases, I have had difficulty myself in locating this fuse. Instead of a spring for the oven door or a spring and chain arrangement, I would like to suggest some kind of a counter balance to keep it from falling open with a bang. Something like a door check or dash pot to let the door down easily. For those who prefer more than three heats, I think the well known multi-heat controls have proven satisfactory and exceeded expectations in their wearing ability.

I know there are others more capable and experienced who can improve on these ideas. I am offering them more as food for thought to the builders of electric ranges and the utilities that serve them.

Power Factor Improvement

(*Continued from page 16*)

citors for power-factor improvement of 5 to 25 hp motors for 220, 440, or 550 volt service are relatively large compared with the motor and may require special consideration to location and mounting. However, this limitation may be avoided if the capacitor is located in the motor starter.

(5) *Improvement in overall plant power factor is limited.* Power-factor improvement of individual motors has the limitation of improvement of the motor load only. If additional power-factor improvement is necessary for the plant, the additional capacitors required should not be switched with the motors. With the group capacitor method, the entire plant power factor may be improved to the desired level.

Generally, economic considerations favor the group capacitor installation for plant power-factor improvement when the service voltage is below 600 volts, the individual motors are small, and the motor diversity factor is large. For other conditions individual comparisons should be made. For maximum operating benefits, the group capacitor method will usually consist of several blocks of capacitors automatically switched.

Modern Home Lighting

(*Continued from page 14*)

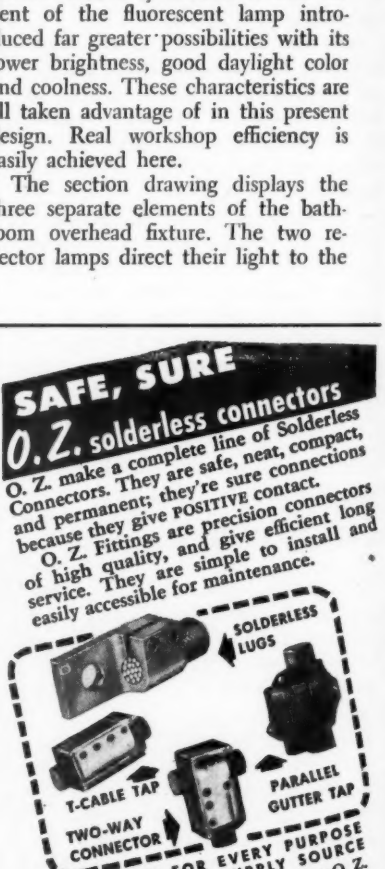
supplied with two ceiling fixtures, each using two 40-watt fluorescent lamps. The two principal work areas are especially well handled. Instead of using recessed units over these areas, the simple expedient of plaster hoods, shown in Figs. 8 and 9, is used for mounting and shielding the lamps. The floor plan sets forth the entire arrangement of all the equipment.

The first well-designed electric kitchens contemplated lighting that aimed to keep abreast of the improvements in such appliances as the range, dishwasher, and refuse disposall. The built-in soffit over the sink and range with incandescent lamps came into use. Improvements in the center fixture were only moderate. The advent of the fluorescent lamp introduced far greater possibilities with its lower brightness, good daylight color and coolness. These characteristics are all taken advantage of in this present design. Real workshop efficiency is easily achieved here.

The section drawing displays the three separate elements of the bathroom overhead fixture. The two reflector lamps direct their light to the

SAFE, SURE
O. Z. solderless connectors

O. Z. make a complete line of Solderless Connectors. They are safe, neat, compact, and permanent; they're sure connections because they give POSITIVE contact. O. Z. Fittings are precision connectors of high quality, and give efficient long service. They are simple to install and easily accessible for maintenance.



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7394

wall areas on each side of the mirror. In this way the wall areas become the sources of light for makeup or shaving light. This system calls for dull white or nearly white wall areas at least near the mirror. The scattered light from these areas will also generally illuminate the room to relieve contrasts. For just coming and going, the two diffusing glass panels with their lamps serve; for cool mornings, the heat lamp warms the back and arms instantly.

Wartime Experience Helps in Planning

(Continued from page 11)

therefore the need for a stoker.

"I began handling stokers and other heating and ventilating equipment when I found they were available for replacement purposes and for industrial and commercial use where electrical appliances were not," explained Mr. Eubanks. "It was also a line where the unit sale was comparatively large and where engineering skill in making the installation also counted for something.

"I think we have hit upon the combination which we will feature in the postwar period. We will probably handle everything in the electric line from bottle warmers to walk-in freezers but our specialties will be in the refrigerating, the heating, and ventilating field. In short, we will be prepared to furnish complete year around air conditioning for the home. In the winter, we will heat the air, filter it, humidify it, and circulate it. During the summer, we will cool, dehumidify, and circulate the air. We will blow both hot and cold, but in direct contrast to the weather outside. By selling heating equipment in the winter and attic fans and room coolers in the summer, we feel our business will be virtually "slump proof," that is, not effected by the ups and downs of seasonal selling."

While most of Mr. Eubanks' sales are now of the industrial type or for replacement purposes in the home, he figures that his "meat" after the war will be in new residential construction. Here is what he proposes to sell the homebuilder: a complete electric kitchen, a package heating system, a home laundry including washer, ironer and perhaps a drier, attic fan, kitchen ventilator and attic insulation. This should add up to a $2,000 to $3,000 sale and is a far cry from the old days when the dealer thought he was in "high cotton" if he sold a single refrigerator or range to the home builder.

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Without Dismantling!

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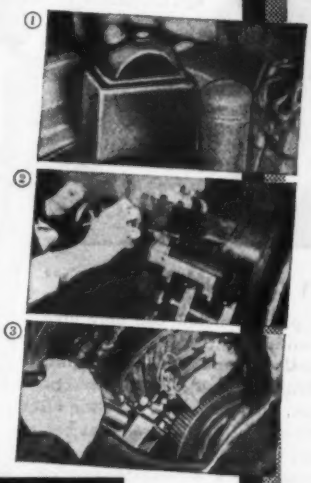

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WITH A WISE PLAN *carries*

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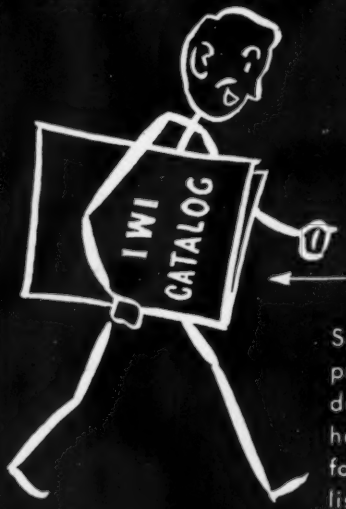

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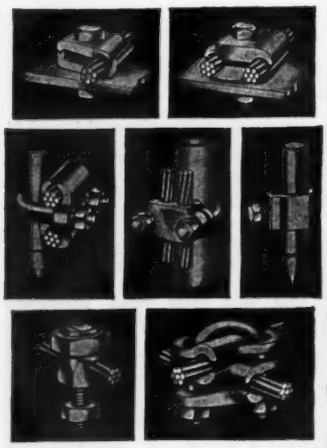

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Conductor Fittings

In thinking big and planning big for this postwar market, Eubanks will set up complete unit displays in his store. In heating equipment he will show a complete heating system including stoker, blower, controls, filters, ductwork, registers, etc. In his model kitchen he will include everything, not only the refrigerator, range, hot water heater, and dish washer, but also ventilating fan, electric clock, door bell, radio, telephone and other gadgets. In the home laundry, he will have the automatic washer, ironer, drier and sorting tables. His attic fan setup will include the complete housing, switch and grilles. He also plans an air conditioned room in which to display self contained air conditioners.

The price Eubanks will quote will be for the overall job installed, and not for its component parts. He proposes to sell ideas and results and not physical equipment. In carrying out this plan he knows he will need the help of the utilities and manufacturers. It will be package selling on a big scale and he is already slanting his business in that direction. He realizes he will have plenty of competition from the department stores, the lumber dealers, the chain stores and from others, and for that reason, he is doing his best to get in on the ground floor.

Adequate Wiring Programs Revived

(Continued from page 10)

electricity, based only on the size of the farm is not accurate. For example; a poultry farmer might have use for greater amounts of electricity, and have only a few acres under cultivation, than a farmer engaged in cattle raising, who might have many acres under utilization. Therefore, the electrical needs of a particular farm should be determined from estimates of the needs in and around each building on the farm, based on the present and probable uses of each building.

Complete Wiring Recommended

"The tendency of most farmers is to get electricity connected to their farms for lights only; first in their homes, then to their barns and other out-buildings. Where the opportunity exists, it is our duty to present to him all the advantages of a *complete* wiring installation."

"Under present conditions the electric company brings the desired type and capacity of service to a certain point on the farmer's premises. This point can be the closest building to the company's lines or a pole, owned and installed by the farmer, the location of which is agreed upon by the company. The company installs one set of supports for the "service drop" wires on the building or pole mentioned above. From this point on, the wiring installation is owned and maintained by the customer, except that the company owns and installs the meter at the place provided by the customer. The part of the customer's wiring from the point of contact of the company's lines to the meter is referred to as the customer's main service entrance and must be installed according to rules laid down by the company and filed with the Public Service Commission of West Virginia.

"Rules and Regulations and Wiring Codes are made to insure *Safety* through proper materials and installation. Your wiring layout is intended to assist the customer in getting *Convenience, Economy* and *Satisfaction* from wiring installation. In the very beginning it is well that you and your prospective customer understand thoroughly the entirely different meanings of *Safety* and *Adequacy* in wiring.

"To properly determine Service Entrance requirements a rough sketch should be made of the buildings comprising the farmstead and a complete

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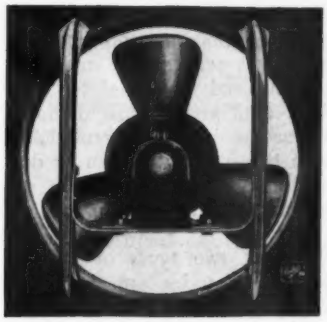
a great hotel
DOWNTOWN ST. LOUIS AT YOUR DOORSTEP

Square panel makes installation easy —

The husky, die-shaped steel panel on which "Breezo" fans are mounted is square, with wide flanged edge turned out. This construction reduces installation time considerably, since a square opening with framed edges can be used. Pressed knockouts on surface of panel permit bolting direct to face of wall if desired, or holes through flange provide simple method of fastening panel inside or outside of framed opening.



Of course, "Breezo" fans in addition to being easy to install, are efficient and durable on the job. They "keep running" — users like them! Write today for Bulletin 3222-C.

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survey made of all probable uses for electricity. On this sketch should be shown sizes (in sq. ft. floor space) and uses of each building, relative to general location of buildings and the electric company's service pole and the distances involved. To this sketch can be added anticipated loads, outdoor feeder sizes and other pertinent data.

"With this information can be determined the best type and size of service entrance for the particular farm.

"There are two types of Service Entrance design to be considered, the 'central pole' and 'first building.' Any of the generally used sizes may be one of these two. The important thing is that the main service be located centrally with reference to the 'load.'

"The final decision as to type and size of Main Service Entrance should be reserved until the needs of each individual building have been surveyed. On the rough sketch, mentioned previously, expected load of each building can be noted and a much better appraisal of the over-all electric service needs of the farmstead can be obtained.

"In making a decision as to size and type of service entrance that should be recommended all possible influencing factors must be considered."

"Even though a complete wiring job is not intended for the present, it is generally more desirable to provide service entrance capacity to allow complete wiring later."

Wiring Layout For Dwelling

"The wiring system in farm homes needs to be planned, so as to be safe, convenient and adequate. The needs of each farm home will be different and it is necessary to:

"1. Discuss and find out from the farm family, and particularly the farm woman, what they want electricity to do for them inside the home.

"2. Stress the need and advantages of other possible equipment they might use in the home in the future.

"3. Make a complete list of the things for which they wish to use electricity.

"4. Carefully plan an adequate wiring layout not only to care for their present needs, but also for the future, from the standpoint of convenience and safety."

"A wiring plan for the farm is essential to permit electricity to serve the farm: economically, safely, and adequately.

"Before attempting to make a wiring layout for the farm, first find out what he, the farmer, knows about electricity as a hired hand. Ask the farmer what he would like for his electric servant to do for him. Write these down and add others as you get the picture of his particular farming operation. With this as a background, give him the proper layout for wiring that will do the job with safety and convenience.

"It appears that any farm productive enough to provide a decent level of living for the farm family and at the same time put into effect those practices to conserve its soil and maintain its buildings and equipment, should justify a 3-wire, 60 ampere, entrance service. To really give electricity a chance to serve that farm adequately, this entrance switch should be near the load center either on an outside pole or in a centrally located building. And a similar switch at the entrance of each building large enough to handle the required load for that building."

"1. Convenience of doing chores about the barn after dark and before daylight.

"2. Eliminates the fire hazard of using oil lights.

"3. Some equipment likely to be used includes milking machines, clippers, barn ventilation, hay driers, heat lamps, pails for heating hot water, feed grinders, corn shellers and feed mixers. This equipment calls for special, heavy duty outlets and the load varies from a fractional hp. motor up to 5-7½ hp."

"By using lights during the fall and winter months to provide a minimum of 13 hour working day for the hens, egg production can definitely be increased during those months, which are the months during which eggs are at the highest price.

"Permits the use of electric water warmers, which increases the amount of water consumed, which is a contributor to high production.

"Lights are a convenience when necessary to work in the poultry house after dark.

"Electrical equipment provides a distinct advantage in repairing and maintaining farm equipment. The use of such equipment as electrically operated drill press, soldering iron, bench saw, emory wheel, grindstone, etc.

"Convenience and safety of doing this type of work at night by electric light.

"If electrical equipment shop is provided the farmers will do a better job and take more interest in maintaining equipment in good working order."

WANTED

Electrical and Mechanical Engineers for design and application engineering of fractional horsepower induction motors. Address Supervisor of Technical Employment, 306 Fourth Avenue, Pittsburgh, Pennsylvania.

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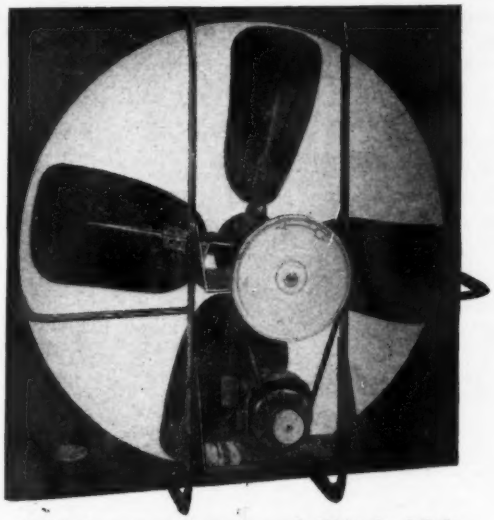

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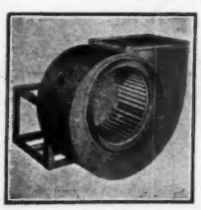

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Every man concerned with motor rewinding will want a copy of this new publication by A. C. Roe which contains 72 modern connecting diagrams for induction motors of from 4 to 12 poles. The diagrams are arranged for dual voltage connections and best magnetic balance. A copy of this 132 page book is available with each 3-year subscription to Electrical South—total cost, $3. Write at once to

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